# WESTERN INDUSTRY

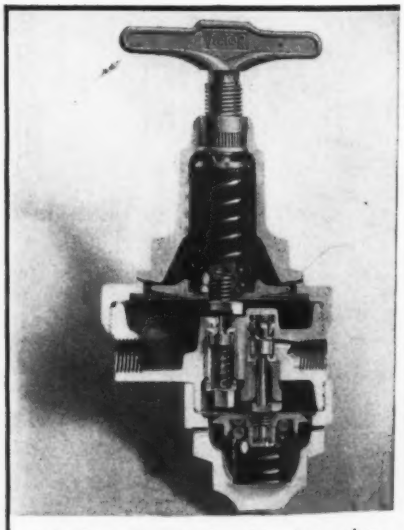
• A major part of world's beet sugar is produced in California, Utah, Montana, Idaho, and Wyoming. For details see Page 5.

THIS ISSUE: Supplying the West With Skilled Labor; Process Inspection Raises Quality and Cuts Costs; Employees Learn How to Build Good Will For Their Company; Plant Built Tools For Plastics; Distribution Cost Control as Marketing Advantage Key; Blower System For Copra

Thirty-Five Cents VOLUME XIII NUMBER 7 July, 1948

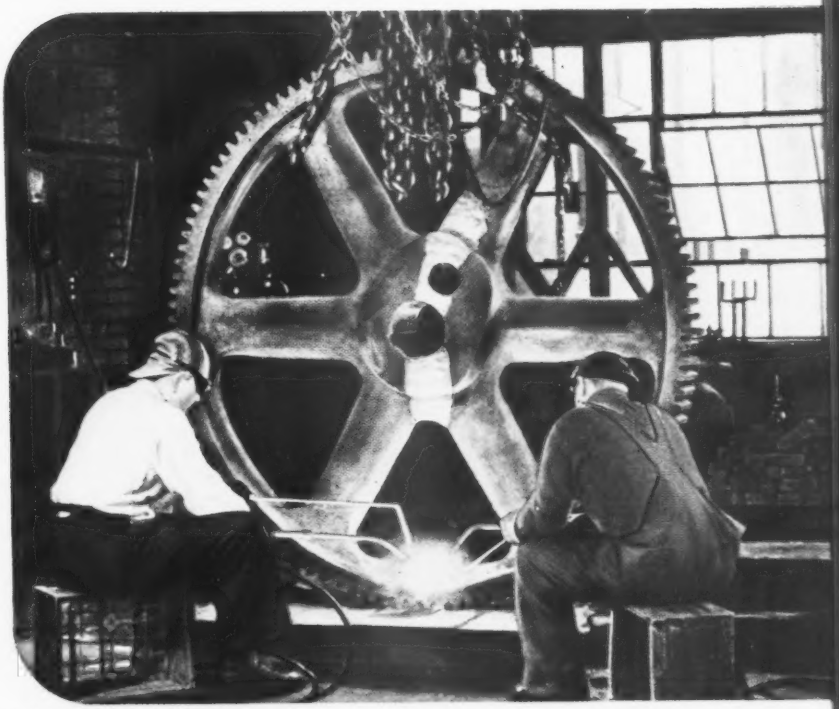
*Made by* ..... VICTOR

proper control of gas pressures safeguards gas or compressed air operated tools and, when welding or cutting torches are involved, fine pressure reducing regulators conserve gases and safeguard operators. single or two-stage reduction regulators for all types of cylinder gases or cylinder manifolds . . . for very small or very large hourly gas volume . . . are made by victor . . . and it's more than a slogan that victor welding and cutting equipment costs less to own and to operate. victor equipment company, san francisco 7, calif.



what's under the hood is what makes the automobile go . . . what's inside of a regulator determines its true value.

# *Check up* on Bronze Welding *now*

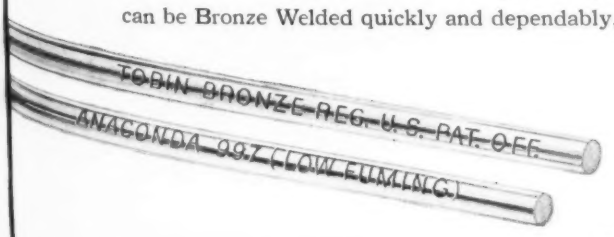


When this 7-foot gear broke in half, a whole production unit depending on it stopped dead in its tracks. But in less time than it would take to complete foundry preparations for a new casting, the broken gear was bronze welded and ready for machining the two bores. Alignment of the teeth was excellent, and only a small amount of hand finishing was necessary. The Super Arc Welding Company of Detroit did the repair job, using 235 pounds of Anaconda Tobin Bronze Welding Rod.

Even in the best-managed plants some equipment failures are bound to occur. Next time, instead of thinking in terms of patterns, foundries, machine shops and weeks of delay—think of economical Bronze Welding.

For years this low-cost, low-temperature method of oxy-acetylene repair welding has been used to salvage broken or fractured equipment . . . or to build up worn surfaces. Almost any part made of cast iron, steel, malleable iron or copper alloys can be Bronze Welded quickly and dependably, usually at a small fraction of the cost of replacement parts.

There are dependable Bronze Welding repair shops in most industrial areas, so if your own shop isn't equipped, check with your directory—or the nearest District Office of The American Brass Company. In the meantime, write for Publication B-13, which gives detailed information on the Anaconda Welding Rods listed on the next page.

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ANACONDA
from mine to consumer

*Anaconda*
**BRONZE WELDING RODS**

a baker's dozen of

# ANACONDA WELDING RODS

| NAME OF ROD | APPROXIMATE COMPOSITION PER CENT | APPROX. MELTING POINT—DEGREES CENT. | FAHR. | SUGGESTED WELDING METHOD AND USE |
|---|---|---|---|---|
| **ANACONDA COPPER 372** Patent No. 2,220,464 | 98.85 Copper | 1075 | 1967 | Oxy-acetylene and inert-gas-shielded arc welding of copper. |
| **DEOXIDIZED COPPER 939** | 99.9 Copper, deoxidizer present | 1083 | 1981 | Oxy-acetylene welding of copper. |
| **SILVER BEARING COPPER 110** | 99 Copper, 1 Silver | 1078 | 1972 | Oxy-acetylene welding of copper. |
| **SILICON COPPER 943** | 99.75 Copper, .25 Silicon | 1083 | 1981 | Oxy-acetylene welding of copper, copper to steel. |
| **TOBIN BRONZE* 481** | 59 Copper, .50 Tin, remainder Zinc | 885 | 1625 | Oxy-acetylene welding of steel, cast iron, copper and its alloys, nickel and its alloys. |
| **ECONOMY* BRONZE** | Copper, Zinc, Tin | 885 | 1625 | Oxy-acetylene welding of steel and cast iron, etc. |
| **ANACONDA 997 (Low Fuming)** | Copper, Zinc, Tin, Iron, Manganese, Silicon | 870 | 1598 | Oxy-acetylene welding of steel, cast iron, copper and its alloys, nickel and its alloys. Bearing surfaces. |
| **MANGANESE BRONZE 984** | Copper, Zinc, Tin, Iron, Manganese | 870 | 1598 | Oxy-acetylene welding of steel, cast iron, copper and its alloys, nickel and its alloys. |
| **SUPER-NICKEL 826** | 70 Copper, 30 Nickel | 1225 | 2237 | Oxy-acetylene welding of Cupro-Nickel and steel. |
| **EVERDUR* 1010** | 96 Copper, 3 Silicon, 1 Manganese | 1019 | 1866 | Oxy-acetylene, carbon arc and inert-gas-shielded arc welding of Everdur, copper and copper alloys. Special applications to steel. |
| **PHOSPHOR BRONZE 903** | 95.75 Copper, 4.00 Tin, .25 Phosphorus | 1050 | 1922 | Carbon arc welding of phosphor bronze and copper. Special applications to steel. |
| **PHOSPHOR BRONZE 310** | 89.2 Copper, 10.5 Tin, .3 Phosphorus | 1000 | 1832 | Carbon arc welding of phosphor bronze, copper and copper alloys. Bearing surfaces on steel. |

*Reg. U. S. Pat. Off.

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Anaconda Nickel Silver 828 is a 10% nickel welding rod for oxy-acetylene "white-bronze" welding of steel and cast iron. Information on welding procedure will be furnished on request.

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*This Month in*

# WESTERN INDUSTRY

VOLUME XIII JULY, 1948 NO. 7

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**Front Cover**

Amalgamated Sugar Company's Nampa, Idaho, refinery is one of the most modern in the U. S. During the 1947-48 season it processed 1,250,000 hundred-pound bags of beet sugar. Photo shows battery of thick juice filtration presses, each with 108 filtering surfaces to remove suspended solids from liquor.

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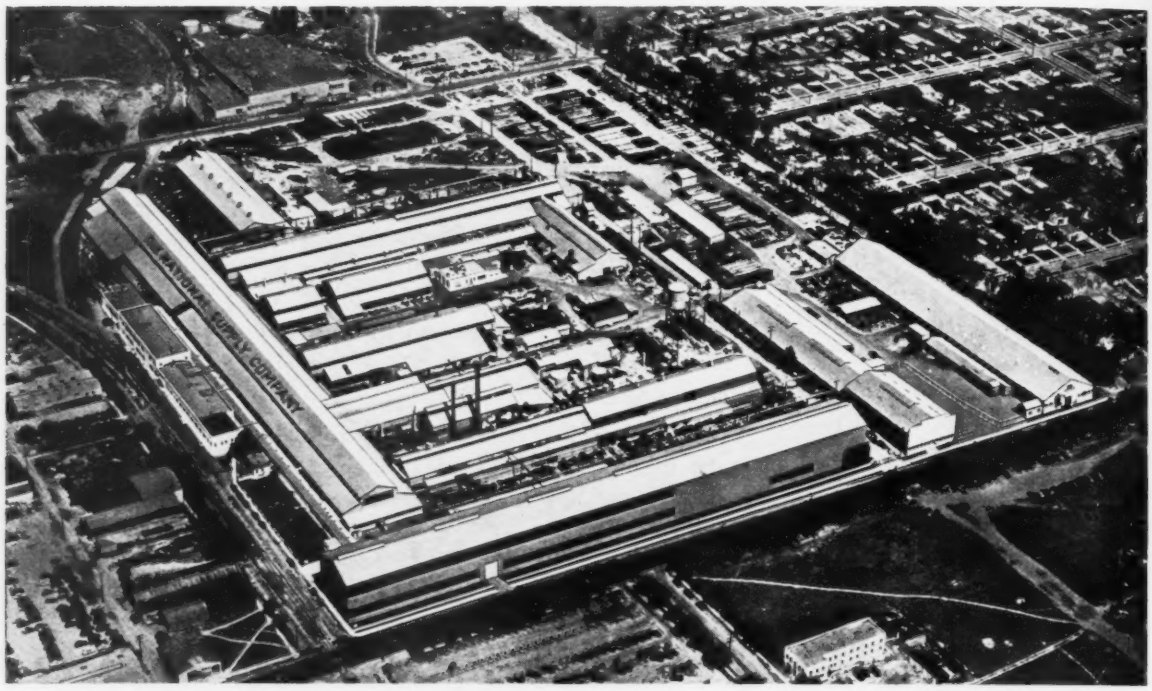


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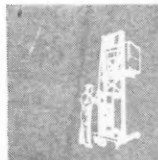

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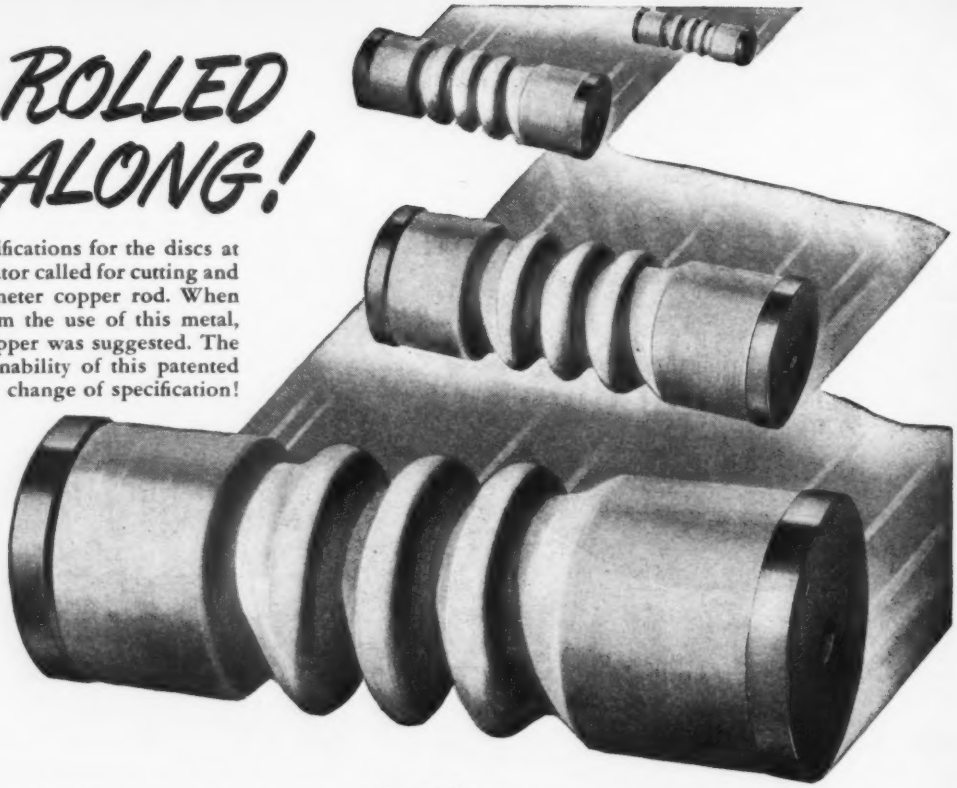

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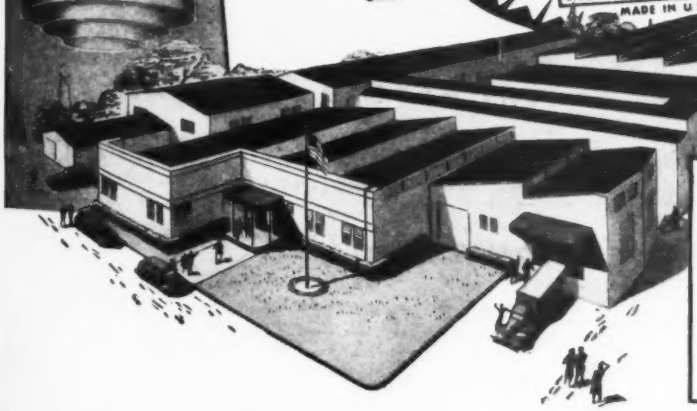

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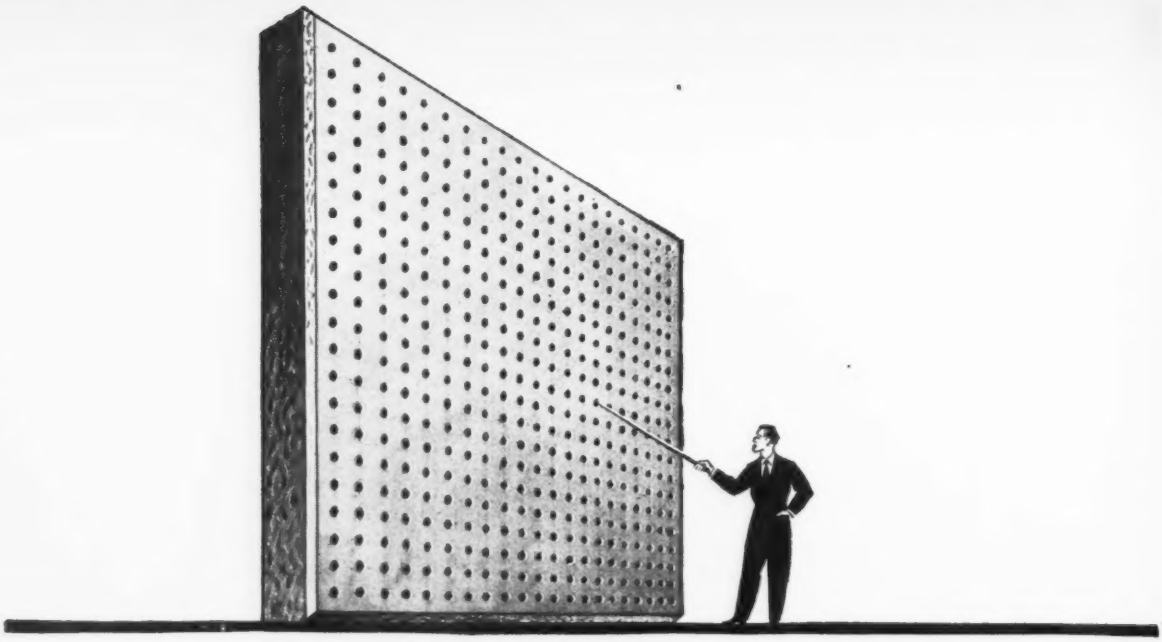

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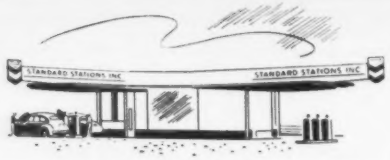


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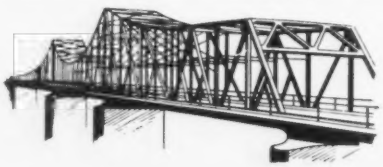

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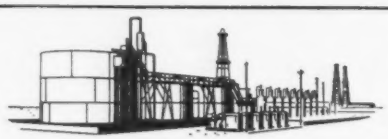

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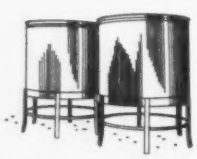

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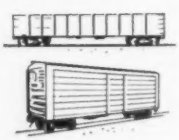

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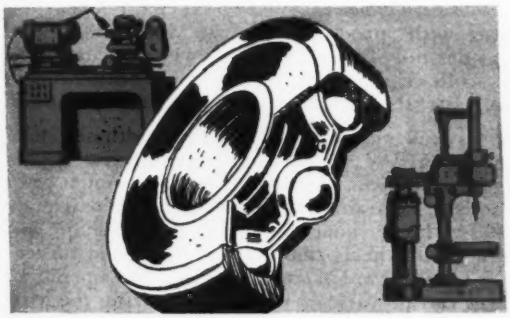

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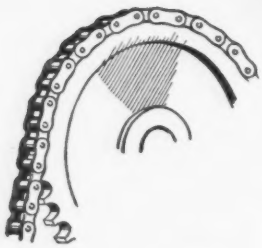

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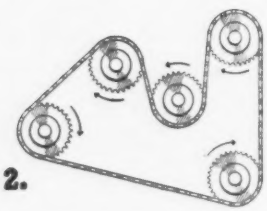

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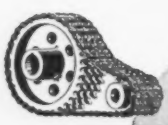

YOU'LL get greatest efficiency . . . sustained efficiency . . . in the smallest overall space with a roller chain drive. For only roller chain gives you all these advantages:

**1.** *Positive transmission of power.* Since roller chain depends on positive contact with sprocket teeth . . . does not rely on tension . . . it does not slip and waste power. Speeds can be fast or slow . . . roller chain is equally efficient at both throughout its working life. It accurately times machine operations.

**2.** *Transmit more horsepower in less space.* The width of a chain drive is relatively narrow compared to other types of drives, *regardless of load conditions.* It requires only minimum wrap around sprockets . . . can drive multiple shafts from a single power source. On large reduction drives, roller chain will operate over smaller wheels than drives dependent on tension, since they need less arc of contact for effective operation. Center distances can be varied as desired, assuring the most effective use of your space.

**3.** *Easily installed.* Just mount the sprockets on the shafts, wrap the chain around the sprocket and couple the chain. That's all there is to it. There's no need to move or remove the shafts.

*AND, in addition,* roller chain drives last longer because load is distributed over many sprocket teeth. They require fewer adjustments, impose less load on shafts and bearings and absorb damaging shocks.

For all the facts on roller chains and how they can help you, see your Baldwin-Rex Man, or write direct to Baldwin-Duckworth Division of Chain Belt Company, 352 Plainfield Street, Springfield 2, Mass.

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**ROLLER CHAINS**

BALDWIN-DUCKWORTH DIVISION OF CHAIN BELT COMPANY

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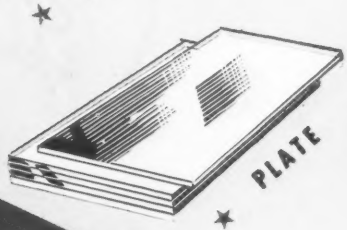

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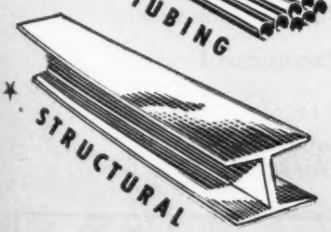

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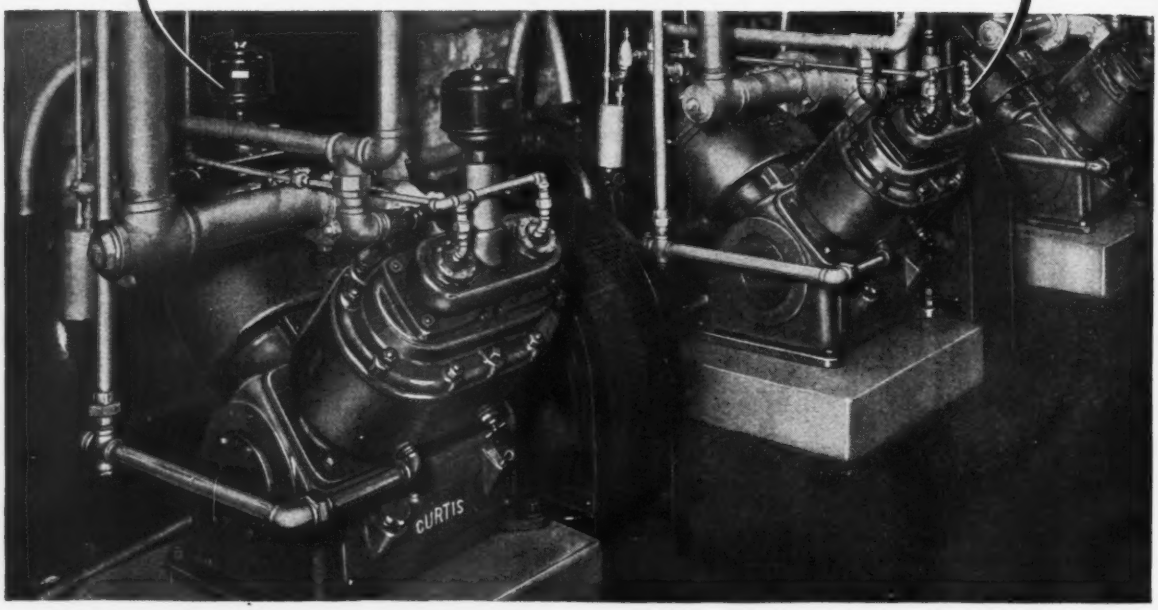


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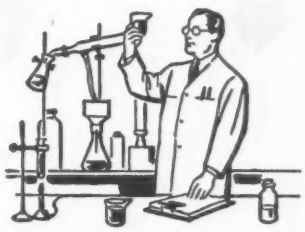
# SHELL TURBO OIL

## to help extend the running time of turbines

### *Weak oils can cut down turbine efficiency*

Likely you've seen what happens—how ordinary oils oxidize, break down into sludge, "gum up the works"—even cause rust. Result: shorter running time and higher operating costs.



### *Shell's answer: a doubly fortified lubricant*

Shell Research specifically developed an oil for turbine use—Shell Turbo Oil. To build this oil, Shell selects only crude stocks naturally high in oxidation stability—sludge resistance. Then, with Shell-developed additives, Shell Turbo Oil is doubly fortified. Once to build up its naturally high resistance to oxidation. Again to assure exceptional rust-preventing quality.

### *What you as a Shell Turbo user can expect*

Little or no trace of sludge, no rust, no breakdown in the oil. In fact, Shell Turbo Oil has been delivering exactly that kind of lubrication performance in all types of installations—and always to the end of extending the running time of turbines.

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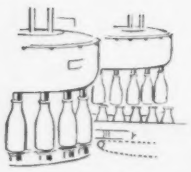
**ARE YOU ABSOLUTELY SURE YOU ARE GETTING ALL THAT'S NEW IN LUBRICATION?**

Your Shell Lubrication Engineer can make a complete study and analysis of your plant and machines... give you engineering counsel, advice on new lubricants and their application... help you set up schedules and controls for each and every machine. For that kind of service, call in your Shell Lubrication Engineer.

# Stop Corrosion ...Use Globe Stainless Steel Tubes



When corrosion is found in tubing or metal parts formed from tubing, Globe Steel Tubes Co. can help you solve that problem. Not by suggesting just any stainless steel tubing . . . but by recommending the correct analysis and metallurgical properties of the Globe Stainless Steel Tubing to best meet your specific operating conditions.

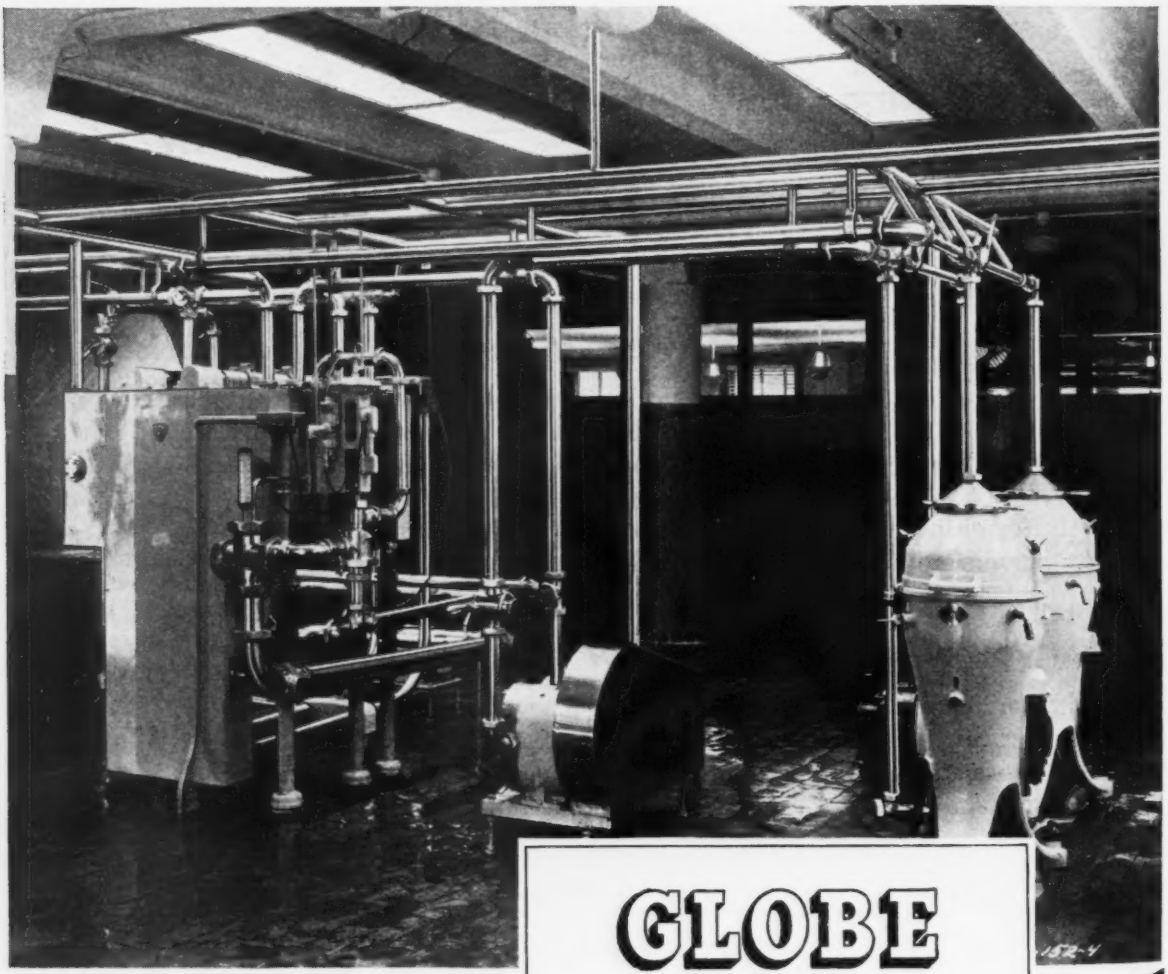
Globe Steel Tubes Co. can do this because they study the problem in cooperation with your engineers in your plant and in Globe's completely equipped metallurgical, physical and chemical laboratories. Result: You get recommendations for the specific analysis and metallurgical properties of stainless steel tubing in the size and finish you need to do your job best at maximum economy.

Globe Steel Tubes Co. has been rendering this service to industry for 40 years. Many of your problems involving tube failure, metallic contamination, corrosion, scaling and sanitation are an old story to Globe. Chances are, the answer to your problem is immediately available for the asking.

Let Globe Steel Tubes Co. assist you in surveying your tubing needs and problems, and you are assured of an outstandingly dependable source for steel tubing of all kinds: Stainless, Mechanical, Alloy Steel and Pressure . . . in a wide range of sizes and types to meet your requirements . . . plus the engineering and research facilities to solve your tubing problems.

GLOBE STEEL TUBES CO., Milwaukee 4, Wisconsin

Photo courtesy Creamery Package Mfg. Co.



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*Stainless*
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**Free valuable technical data in Globe Steel Tubes Co.'s new "Bursting Pressure Bulletin No. 112A".**

# *Our New Packages*

## CUT YOUR FASTENING COSTS 3 WAYS

RB&W's consistent effort to help you keep fastening costs low, is typified by the new, attractive package developed for RB&W bolts, nuts, screws and rivets.

Your first glimpse of the package shows the label information to be clear and complete. Big black type on a white background and the product pictured on the label save your men time and error in selecting from stock.

This box is designed to give maximum opening for accessibility of contents. It is labelled upside down purposely to prevent bottom dropping out while handling . . . it ends all problems of dropping and spilling.

**QUICK IDENTIFICATION.** Picture of contents plus clarity and completeness of label information make selection quick and accurate.

**FUMBLE-PROOF COVER.** Boxes are designed with covers underneath. No danger of box slipping from under cover, spilling contents.

**STURDIER, MORE CONVENIENT BOX.** Brightwood construction, sturdy as metal-edged. No flaps. Opens on flat side, won't tip.

And closer examination shows the construction strong, yet light —abuse resistant, convenient to handle.

Already, the new RB&W package has been called the most sensible—and most attractive—in the fastener industry.

Plants at: Port Chester, N. Y., Coraopolis, Pa., Rock Falls, Ill., Los Angeles, Calif. Additional sales offices at: Philadelphia, Detroit, Chicago, Chattanooga, Oakland, Portland, Seattle. Distributors from coast to coast.

**RUSSELL, BURDSALL & WARD BOLT AND NUT COMPANY**

*103 Years Making Strong the Things That Make America Strong*

# "There's no substitute for the ZIP!"

**THAT'S** why I like to install these Zip-Lifts! They don't have to be replaced every few years. They do everything *right*—and don't give us trouble. No wonder, experienced users say— *"there's no substitute for a Zip!"*

The Zip-Lift is the small wire rope hoist with full magnetic push-button control. It's the standout in quality — with *added* values you'd expect only in the most expensive hoisting equipment. Benefit by proved experience — tens of thousands of P&H Zip-Lifts are now in service. Why not add one to your handling now — to boost production and cut costs? They're available for prompt delivery.

*Get the facts on the P&H Zip-Lift today. Ask for Bulletin H20-4 — complete with applications, pictures, specifications, etc.*

**P&H**
ZIP-LIFT
HARNISCHFEGER CORP. MILWAUKEE, WIS.

## These are added values!

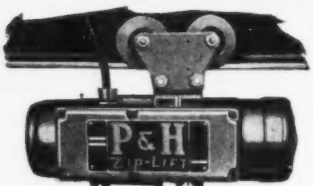
**SAFER** — Full magnetic control with control current reduced to 110 volts at the push-button. Plugging crane type limit switch and large double brakes provide maximum safety. No open wiring.

**LIFETIME CONSTRUCTION** — Precision built — shaved gears running in oil — grease-sealed anti-friction bearings—fully enclosed, moisture-proof, dust-proof, acid-proof.

**SMOOTHER OPERATION** — Motor specifically built for hoist service — high starting torque, frequent reversal, etc. Loads controlled within a fraction of an inch.

**ALERT SERVICE** — Out-of-stock delivery from qualified dealers everywhere—backed by 18 branch offices and 8 conveniently located warehouses.

The Zip-Lift is America's fastest selling wire rope hoist.

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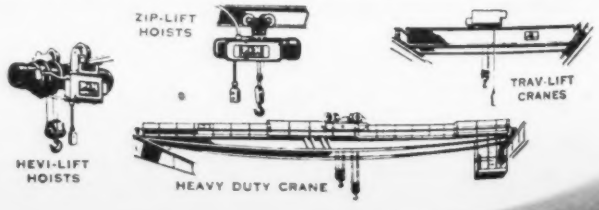

# In Our Mail Box

## Millers' Dilemma

*Editor, Western Industry:*

The International Wheat Agreement, which the wheat flour milling industry believes departs from sound economics and transfer to an international council decisions which should be reserved solely to the Congress of the United States, is a matter of prime importance both to Western industries and the agricultural West. A sub-committee of the Senate Foreign Relations Committee has recently been holding hearings on this matter, and I appeared before them on behalf of the Miller's National Federation and the Flour Millers' Export Association.

The wheat flour milling industry in this country is unified in the belief that the Agreement will not and cannot achieve its stated objectives. On its face, this Agreement would seem to *guarantee* an export market for United States wheat of 185,000,000 bushels per year for the next five years. Actually this not the case, because it contains at least two escape provisions which enable an importing country to withdraw without penalty.

It would seem to *guarantee* a definite minimum price for United States wheat during this period. This is not the case, since quality discounts would be determined by the Council at a later date.

The United States has just voted billions of dollars for European recovery. To insist that European countries, whom we are trying to help, must buy their wheat from us at a price higher than they could buy it from either Russia or Argentina would undermine the goodwill created through the ECA.

If this price competition comes from unfriendly nations for political reasons, it is doubtful if it would be in the best interests of the United States to insist on, or even to encourage, importing nations to buy wheat from us at prices higher than competitive wheats are being offered.

Huge subsidies will have to be paid out of the Federal Treasury whether the world price level is high or low. If it is high, then the importer would be subsidized because we would agree to supply him with wheat at the maximum price. If the world price were low, the subsidy would be to our own farmer because we would not let our support price fall to the world price level under surplus conditions. Under present conditions, the United States may be required to pay both subsidies at the same time.

Here is a brief example of how a flour transaction might work:

An exporter in the United States may agree on a flour transaction with an importer in France. The deal cannot be completed until both the United States and the French governments agree that the flour price correctly reflects the wheat price specified in the Agreement for the grade of wheat to be used in the flour. If they disagree, the question goes to the Council for review and decision. In the meantime, the United States exporter has assumed tremendous risks. Wheat prices can go up or down as much as 10 cents a day. Millfeed prices can move even more in one day. A delay of 24 hours can wipe out any margin a miller may have in the transaction. However, it will likely take not one, but many days, to get a transaction "cleared."

It definitely takes foreign trade in flour out of the hands of individual buyers and sellers and makes it State Trading between our government and the government of the importing country, with the Council making the final decision in many cases. It destroys the American millers' advantage of brand preference obtained from a long history of high, uniform quality.

JOHN L. LOCKE, Manager
Fisher Flouring Mills Co.
Seattle, Washington.

*(Continued on page 23)*

# EDITORIAL COMMENT

## Westerners Come Forward

WESTERNERS have been accorded considerable recognition in recent months in public administrative offices affecting our national economic picture, which is no longer framed by the Atlantic and Pacific oceans and the Canadian and Mexico borders, but extends to the "iron curtain" in one direction and the far reaches of interior China on the other. This recognition is not due to any particular effort to please the West, but rather because Western executive talent is coming to the front.

ECA has three Westerners in key positions: President Paul Hoffman of Studebaker Corporation, former Angeleno who still owns his Studebaker agency in Los Angeles; J. D. Zellerbach, president of Crown-Zellerbach Corporation, who heads up ECA in Italy, and Roger Lapham, former president of American-Hawaiian Steamship Company and more recently mayor of San Francisco, who takes on the ECA job for China.

Then we have W. Walter Williams, Seattle financier, chosen to succeed Paul Hoffman as chairman of the Committee for Economic Development.

And last but not least, Earl Bunting, who began his business career in La Grande, Oregon, and for fifteen years was a resident of Portland. He leaves the presidency of O'Sullivan Rubber Company in Virginia to become executive vice-president of the National Association of Manufacturers.

The choice of Bunting for the NAM wheelhorse position left vacant by the death of Walter Weisenburger means that the permanent staff of NAM will now be headed up by an industrialist in his own right, one who has served as president of NAM. It should give NAM added strength and make his office the key to the whole organization. Not that NAM presidents don't have a finger in the pie—some of the most determined of them stuck their whole hand in—but the office will now have an authority that it could not have had before.

Earl Bunting's quiet homespun manner can do much to make the NAM better liked and understood by the general public, and his Western upbringing will inevitably leaven the hitherto Eastern and Middle West complexion of NAM.

There is no intention here to ignore the impact of Westerners on the ECA program. It may have ramifications as yet unseen.

## State Trading Sneaks Up on Us

INDUSTRY needs to do a lot more "stop, look and listen" stuff than it has so far in regard to the various international projects on which we are embarking. The letter from John Locke of Fisher Flouring Mills Co., Seattle, appearing in this month's Mail Box shows plainly how one American industry is on the verge of being swallowed up in state trading, and undoubtedly many others will wake up to find themselves in comparable situations. The operations to date of the Office of International Trade are another good example of how free enterprise can become chained up almost overnight.

Free enterprise, as we see it, means above all else freedom to be enterprising. And this in turn calls into operation the soundest judgment of each individual or company, based on experience. The minute some form of state trading appears, the individual initiative and judgment inevitably is subordinated to some form of so-called collective action that all too often is dominated by the thinking of people who have not been through the indispensable baptism of experience in private business. Or else good businessmen get so appalled at the immediate situation facing them that they forget that the best way out in the long run is always through the trial and error method of individual experience.

# USERS EXPRESS PREFERENCE FOR Exide IRONCLAD BATTERIES

IN a recent national survey made by a leading industrial publication, 81.1% of electric industrial truck users expressed a preference for Exide-Ironclad Batteries.

Such overwhelming preference for the Exide-Ironclad Battery is based upon user experience. This unique battery has, during the past 35 years, proved itself to be a thoroughly dependable, safe and efficient power source for all makes and types of electric industrial trucks.

Different from all other batteries in construction as well as in performance, the Exide-Ironclad possesses ALL FOUR of the essential characteristics demanded of a battery for electric industrial truck service—(1) high power ability, (2) high efficiency, (3) great ruggedness, and (4) long life. These characteristics are due to the special construction of the Exide-Ironclad Battery, especially its rugged, tubular positive plate.

THIS POSITIVE PLATE
consists of a series of slotted rubber tubes which contain the active material (see illustration at left). So fine are these slots that, while they permit free access of the electrolyte, they retard the loss of the active material, thus enabling the battery to deliver years of dependable day in and day out service.
It's because of this dependable service that such a large percentage of electric truck users prefer Exide-Ironclad Batteries—the nation's leading source of power for all makes and types of electric industrial trucks.

Write for further particulars and FREE copy of Exide-Ironclad Topics, which covers latest developments in material handling and shows actual case histories.

***1888...Dependable Batteries for 60 Years...1948***

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia • Los Angeles • Seattle • San Francisco • Denver

*Exide Batteries of Canada, Limited, Toronto*

## MAIL BOX *(Continued from page 21)*

### D-C Welding

*Editor, Western Industry:*

The article by Mr. F. H. Varney about D.C. motor generator welders is very interesting. His statements are most enlightening, especially in view of the power shortage, and his solution undoubtedly will be adopted by many companies who have such equipment.

In this connection, you may be interested to know that the Shepherd Tractor & Equipment Company in Los Angeles realized this problem some time ago, and they decided to install engine driven generators to furnish power for the welders and incidentally utilize the waste heat from the engines to heat their building. Intermittent operation of the welders, of course, causes a great deal of low power operation of the engines which, in turn, would normally be harmful to the engines because the cooling water temperature would vary with the load on the engines.

The "vapor phase" system of cooling, developed by our company, overcomes this difficulty, and it therefore contributes to solving this problem. Thought you might be interested to learn of this development which is being used for engine cooling on an increasing scale.

Low temperature cooling is especially harmful on fuels which cause corrosion, such as sewage gas, and for that reason many of the sewage plants, during the past years, have installed our system.

The City of San Diego is installing additional engines in their sewage plant using our system. The City of Los Angeles has just released specifications for the buildings and machinery which includes nine 1,600 horsepower dual fuel engines, and our equipment is specified for both cooling and providing low pressure steam from the engine cooling system for the purpose of heating the sludge digesters.

HANS BOHUSLAV, Vice-President
In Charge of Engineering
Engineering Controls, Inc.
Los Angeles, California.

*Editor, Western Industry:*

Northrop Aircraft, Inc., has no data to confirm Mr. Varney's article concerning power saving for D-C welding machines. Our own production machines are switched off when not in use for any appreciable length of time. The operators weld with both oxyacetylene and arc welding equipment, but do not allow the welding machines to run idle when gas welding.

T. E. PIPER
Chief Process Engineer
Northrop Aircraft, Inc.
Hawthorne, California.

*Editor, Western Industry:*

I feel that one of the biggest contributions which the welding industry can make to economic use of electric power is the adoption of alternating current transformer-type welders. As you know, the general trend nowdays in welding machines is toward the AC-type welder, and I think that the saving from this change will be appreciable country-wide.

E. W. MACCORKLE, JR.
Vice-President
Air Reduction Pacific Company
Portland, Oregon.

### BLS Program

*Editor, Western Industry:*

. . . For several months we have read the Western Outlook, especially the employment picture, and have been amused at the monthly harpoon thrown into Oregon. We also note, and we are in full accord, the support of the BLS program, even though Oregon did not sign a contract with the BLS for their shuttle slip.

Attached is a table of Estimated Oregon Manufacturing Employment and the method by

*(Continued on page 25)*


# Bertha... "THE SEWING MACHINE GIRL" is really cozy now !

How to keep 25,000 square feet of unbroken floor area warm enough that women's fingers could keep pace with high speed sewing machines, even on coldest days? Mr. M. M. Barry, manager of the Connellsville Sportswear Company, a garment manufacturing plant in Connellsville, Pennsylvania, had this seemingly expensive heating problem to solve.

Mr. Barry found a simple, low-cost solution by providing heat directly at working level with Dravo *Counterflo* Heaters. Four heaters, one on each wall, blanket the factory working area with a draft-free "cross-fire" of warm air above the heads of the workers. Heat distribution is uniform at 72 to 75 degrees throughout.

Completely automatic, the Dravo *Counterflo* Heaters require only a fuel line, power line and short vent stack—no boiler room. The thermostat is lowered or shut off completely at night for additional, important economies.

Dravo heaters produce warm air quickly. Sturdy, carefully engineered construction, plus a stainless steel combustion chamber, minimize maintenance cost. Equally efficient with oil or gas, sizes ranging from 400,000 to 2,000,000 BTU per hour output are available. A touch of the selector switch converts them immediately to high-capacity air-circulating units for summer use.

If you would like more information to help solve your own heating problems, write for Bulletin JI-516, Heating Section, Dravo Corporation, Dravo Building, Pittsburgh 22, Pennsylvania.

Living room comfort speeds production and cuts absenteeism in this modern garment manufacturing plant. As the manager, Mr. Barry says, "Women employees cannot be expected to operate sewing machines properly if their hands and feet are cold or if they are otherwise uncomfortable."

Dravo also manufactures the *DRAVO CRANE CAB COOLER* for air conditioning hot-metal crane cabs

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UARCO INCORPORATED, Oakland, Calif.
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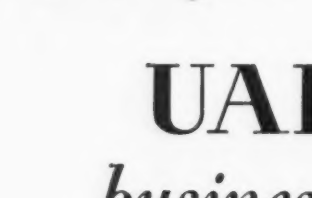
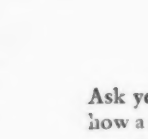
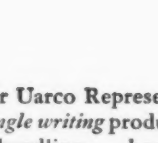


*for instance . . .*

UARCO *Speed-O-Form turns any typewriter into a continuous billing machine—in five seconds time! No aligning, no carbon stuffing —the typist has only to type. And just as Uarco Forms permit this minimum* writing, *so they assure minimum* handling *in distribution, minimum* looking *for all concerned!*





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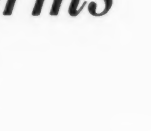
INCORPORATED

*business forms*



SINGLE SET FORMS



AUTOGRAPHIC REGISTERS
AND REGISTER FORMS

MAIL BOX— *(Continued from page 23)*

which it is obtained, which will fill in your table through March, 1948. . . .

V. L. SEXTON, Supervisor
Research and Statistics
State Unemployment
Compensation Commission
Salem, Oregon.

### Future Fuel

*Editor, Western Industry:*

We are very well pleased with your presentation of the article on natural gas development for the Pacific Northwest, and we are, of course, most interested in the development of this project. Although we have little first hand information about the synthetic fuels program, generally it is our understanding that the capital expenditure involved is so great that the project is probably some time off; however, since we are not experts on that subject, this is merely an opinion.

JAMES F. BELL
Assistant to the President
Portland Gas & Coke Company
Portland, Oregon.

*Editor, Western Industry:*

I have no comments to make at the present time on the government's synthetic fuel project. It is very interesting and, of course, we have been following it very carefully.

It is my firm belief that the fuel needs of America in the long-range program must come from coal and the work on both liquefaction and gasification of coal into petroleum oil and gases is timely and needed.

N. HENRY GELLERT, President
Seattle Gas Company.

### New Label Orders Protect Workers

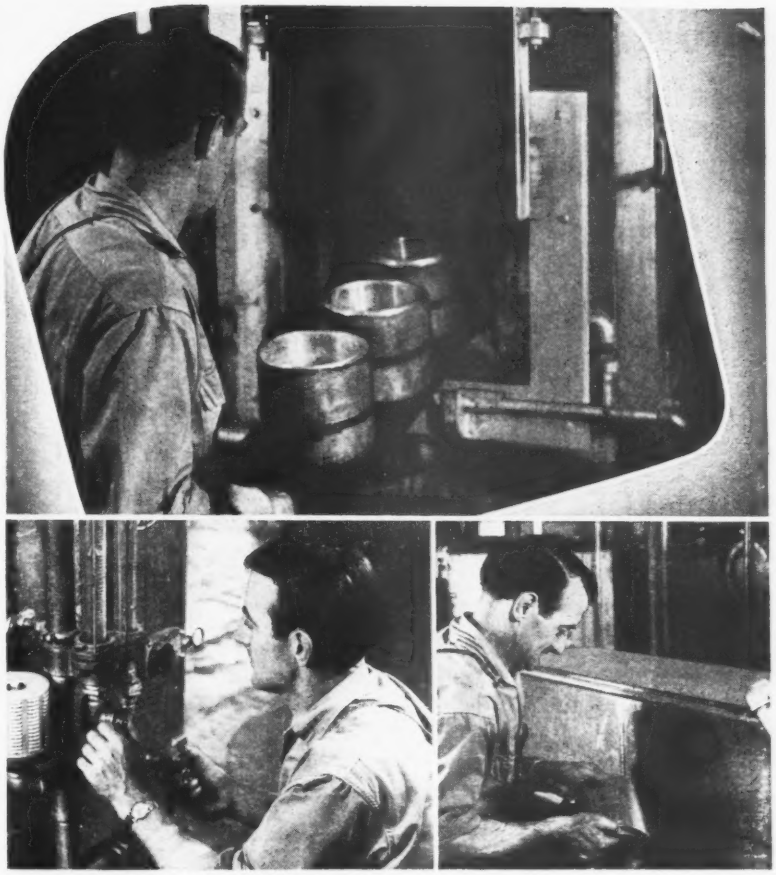
Poisonous or harmful industrial chemicals used in California plants must now carry labels clearly indicating their hazardous nature, as result of new labeling orders recently put into effect. Adopted after three years intensive research by the Department of Industrial Relations with the cooperation of chemical manufacturers, the orders have attracted nationwide notice because they represent a significant advance in the protection of industrial workers.

The labeling orders cover 114 substances, divided into four main groups, poisonous, corrosive, irritating or inflammable.

Copies of a pamphlet, "Danger Wears This Label," which outlines the orders, may be obtained without cost from the Los Angeles or San Francisco offices of the Department of Industrial Relations.

### CMA Elects L. D. Pratt To New Board Post

L. D. Pratt, production manager, Kelco Company, San Diego, was recently elected to the Board of Directors of the California Manufacturers Association. Mr. Pratt has been associated with the Kelco Company since 1934, and has long taken an active part in promoting industrial growth in the San Diego area. He is past president of San Diego Industries, Inc., a director of the San Diego Employers Association, and president of the San Diego Management Club.



PLANT OF HANDY & HARMAN, ALLOYS, LOS ANGELES. *Top*—$1,400 worth of sterling silver is fed into gas-fired annealing furnace.
*Left*—Checking atmosphere-generator.
*Right*—Removing silver from quenching tank after annealing at 1,200° F.


## EXPERTS CHOOSE GAS for ANNEALING PRECIOUS METALS

To achieve gleaming finish, without surface loss of precious metals measured in ounces, requires precision processing. Master craftsmen use gas-fired atmospheric furnaces for this delicate annealing job.

The gas generator creates an atmosphere in the furnace which prevents oxidation and keeps the metals bright. Atmospheric gas, fed into the box at either side of opening, pushes air out. The gas flame burns around the door, forming a seal.

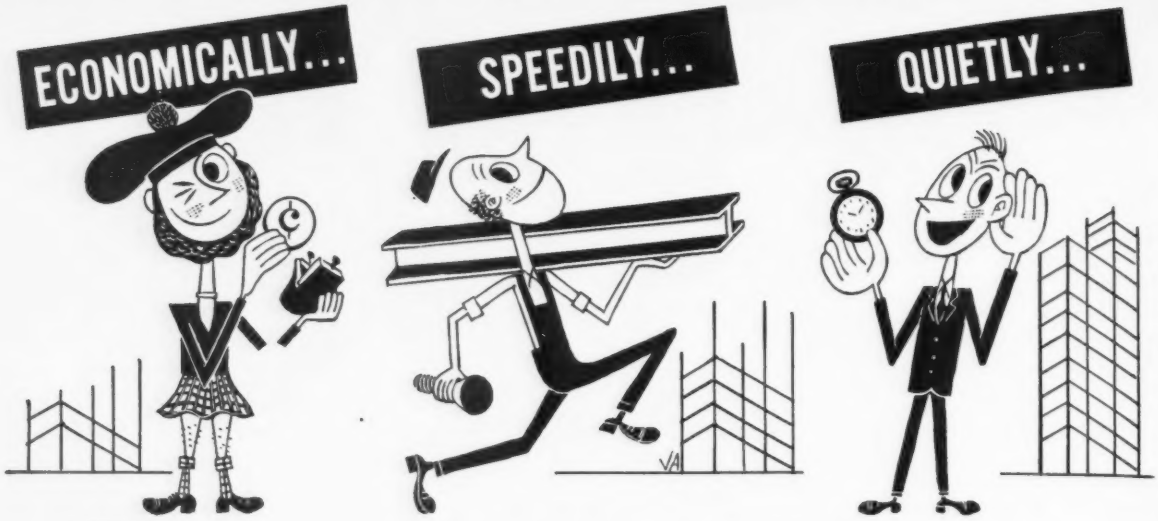
Both generator and furnace are automatically controlled.

Whatever *your* heat-treating job, there's a way to do it better with fast, flexible gas fuel. Without obligation, ask your gas company's industrial engineers.

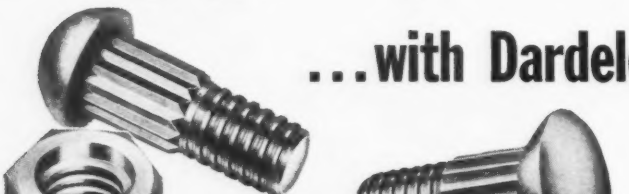
*The West Prefers* GAS
*Better · Quicker · Cheaper*

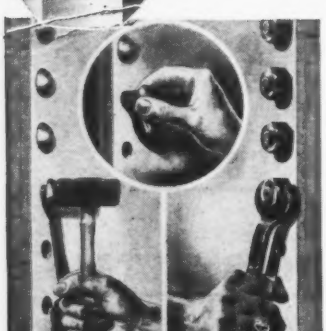
THE PACIFIC COAST GAS ASSOCIATION

# NOW...You can erect your Structural Steel...




## ...with Dardelet "Rivet Bolts"





Erect your structural steel with just a man, a maul and a wrench—and Dardelet "Rivet Bolts." You'll save time and money.

IN all kinds of construction—from the smallest job to the largest structure—the wide use of DARDELET Self-Locking "RIVET BOLTS" has proved their superiority. They are unsurpassed for holding steel members and parts together, no matter how severe the service. They are stronger, faster to handle than rivets—in construction as well as in the repair of all kinds of machinery. Can also be furnished in hot dip galvanized or electro plated. And they're approved by Federal, State and Municipal codes.

Here are some advantages of DARDELET "RIVET BOLT" construction:

**LOWER COSTS.** No expensive heating or driving equipment is needed.

**NOISE REDUCTION** . . . so often an important consideration in repair or remodeling jobs in occupied buildings.

**SPEED.** Fewer men can drive more Rivet Bolts per day. Bolts drive in . . . nuts spin on freely until they contact the work.

**MATERIAL SAVING.** Rivet Bolts may be removed and structural members used again. Disassembly is easy . . . fast.

**SHEAR AND BEARING VALUES** . . . equal to power-driven rivets or turned bolts in reamed holes.

Fill in and mail the coupon—now—and a sample Dardelet "Rivet Bolt" will be sent you absolutely free—along with complete information about this superior method of joining steel parts.

United States Steel Supply Company,
Dept. E7, P. O. Box MM, Chicago 90, Illinois
Please send me without obligation, sample Dardelet "Rivet Bolt," and literature describing use.

Name..... Title.....

Firm Name.....

Street.....

City..... Zone.... State.....

UNITED STATES STEEL SUPPLY COMPANY
USS STEELS SERVICE

## UNITED STATES STEEL SUPPLY COMPANY

CHICAGO (90) CLEVELAND (14) NEWARK (1), N. J. SAN FRANCISCO (1)
BALTIMORE (3) LOS ANGELES (54) PITTSBURGH (12) TWIN CITY
BOSTON (Allston 34) MILWAUKEE (1) ST. LOUIS (3)

UNITED STATES STEEL

# THE WESTERN OUTLOOK..News...Statistics... 1

***Western employment reaches high levels with shortage expected in agricultural workers; Floods create critical power famine in Northwest; Seven-year honeymoon of California canneries just about over; Price-conscious public brings apparel industry slump; Petroleum deficit in event of war shapes U. S. policy in Middle Eastern race for oil rights.***

## Employment Picture

ALTHOUGH unseasonal weather, coupled with labor disputes, played a part in slowing down expected employment increases in Pacific Coast states, prospects for months ahead were optimistic. Farther inland, employment held steady or showed slight gains.

Both manufacturing and agricultural employment in California are higher than a year ago, according to Paul Scharrenberg, director of industrial relations, and Paul Bryant, director of the State Department of Employment. Factory employment is up 8,000 over a year ago, and 10,000 in agriculture. Bryant, who predicts a "tight labor market," stated that there are fewer unemployed in California today than there were six months after Pearl Harbor. At least 350,000 farm workers will be needed during August and September peaks.

While it was better than a year ago, manufacturing employment in California took a dip of 5,000 in April compared to March. Average factory wage was $54.54, an increase of 12 cents from April, 1947.

Intervention by the government in the rail dispute brought at least temporary reemployment to workers laid off in industries hit by freight embargos. Principal decline was seen in California's apparel trades, where employment was down to 43,300, lowest since August, 1947.

In spite of labor disputes in both lumber and aircraft industries, predictions in Washington are for high levels of employment during summer and fall months. More than 20,000 have been made idle either as direct result of strikes or work stoppages influenced by strikes. While a strike of boommen and rafters involved only about 500 men, thousands were thrown out of work by lack of logs.

March is usually the turning point in insured unemployment in Washington, marking the beginning of a downward trend that prevails throughout summer and early fall months. But, due to prolonged wet weather in March this year, benefit payments not only held up but actually showed slight increases over the previous month, it was revealed by Commissioner John J. Davis of the Employment Security Department.

Total non-agricultural employment in Washington reached 674,000 as of April 15, an increase of 5,600 in 30 days. Contract construction showed greatest increase due to the usual seasonal upswing coupled with increased work on the Hanford Engineering Works, home of atomic energy.

All predictions for the Northwest were made prior to the disastrous flooding of the Columbia and tributaries, and with parts of Washington, Oregon and northern Idaho declared emergency areas, previous estimates were subject to radical change. Efforts to repair levees, clearing of wreckage and provision of at least temporary living quarters for thousands made homeless took priority over all else.

In Oregon, applications for unemployment compensation were up slightly in northern Oregon but down 4,000 in the southern part of the state. As a whole, the state had 18,000 fewer unemployed on May 1 than a year ago, although 65,000 jobseekers have migrated to Oregon in the past two years.

Total employment in New Mexico in mining, manufacturing, transportation and utilities, trade, finance, services and regular government industries increased 2,500 between April, 1947, and April, 1948, with oil development responsible for 1,000 of these. Trade employment, showing a steady, month by month gain since 1945, was up 2,200 over a year ago.

Slightly more than 49,000 persons are employed in non-agricultural work in Nevada, with the exception of the construction industry. In six Nevada industries, employment remained steady.

## Commerce and Banking

Despite large expenditures for plant and equipment, demand deposits of manufacturing and mining companies in the 12th Federal Reserve District showed an increase of 9 per cent in the year ending January 31, 1948, over the

*(Continued on page 29)*

### MANUFACTURING EMPLOYMENT

*Estimated Number of Employees in Non-Agricultural Establishments—Source: U. S. Bureau of Labor Statistics*

| | MONTANA | | IDAHO | | WYOMING | | COLORADO | | NEW MEXICO | | ARIZONA | | UTAH | | NEVADA | | TOTAL MTN. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 |
| October | 18,000 | 19,100 | ..... | ..... | ..... | ..... | ..... | ..... | .... | ..... | 12,700 | 12,600 | ..... | 29,155 | 3,400 | 3,700 | ..... | ..... |
| November | 18,000 | 18,600 | ..... | ..... | ..... | ..... | ..... | ..... | .... | ..... | 12,700 | 13,000 | 27,830 | 26,874 | 3,500 | 3,700 | ..... | ..... |
| December | 17,900 | 18,500 | ..... | ..... | ..... | ..... | ..... | ..... | .... | ..... | 13,900 | 12,900 | 27,710 | 26,462 | 3,500 | 3,600 | ..... | ..... |
| | 1947 | 1948 | | | | | | | 1947 | 1948 | 1947 | 1948 | 1947 | 1948 | 1947 | 1948 | | |
| January | 16,300 | 17,700 | ..... | ..... | ..... | ..... | ..... | ..... | .... | 8,200 | 13,300 | 12,900 | 22,690 | 25,000 | 3,600 | 3,300 | ..... | ..... |
| February | 16,400 | 17,300 | ..... | ..... | ..... | ..... | ..... | ..... | 8,500 | 8,700 | 13,300 | 14,700 | 22,380 | 23,820 | 3,500 | 3,300 | ..... | ..... |
| March | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 9,000 | 8,300 | 14,100 | 15,100 | 23,050 | 23,700 | 3,200 | 3,300 | ..... | ..... |
| April | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | .... | .... | 14,500 | 15,900 | 23,510 | 22,300 | .... | .... | ..... | ..... |

| | WASHINGTON | | OREGON | | CALIFORNIA | | TOTAL PACIFIC | |
|---|---|---|---|---|---|---|---|---|
| | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 |
| October | 175,400 | 183,900 | 133,000 | 137,700 | 725,700 | 734,300 | ..... | ..... |
| November | 168,000 | 178,200 | 125,400 | 130,000 | 705,500 | 716,000 | ..... | ..... |
| December | 166,000 | 174,600 | 122,900 | 127,000 | 705,800 | 714,900 | ..... | ..... |
| | 1947 | 1948 | 1947 | 1948 | 1947 | 1948 | 1947 | 1948 |
| January | 162,300 | 172,900 | 121,500 | 122,700 | 697,100 | 704,100 | ..... | ..... |
| February | 166,100 | 173,000 | 124,700 | 125,300 | 693,700 | 703,000 | ..... | ..... |
| March | 169,200 | 173,700 | 122,000 | 126,800 | 692,400 | 700,200 | 1,009,000 | 1,043,000 |

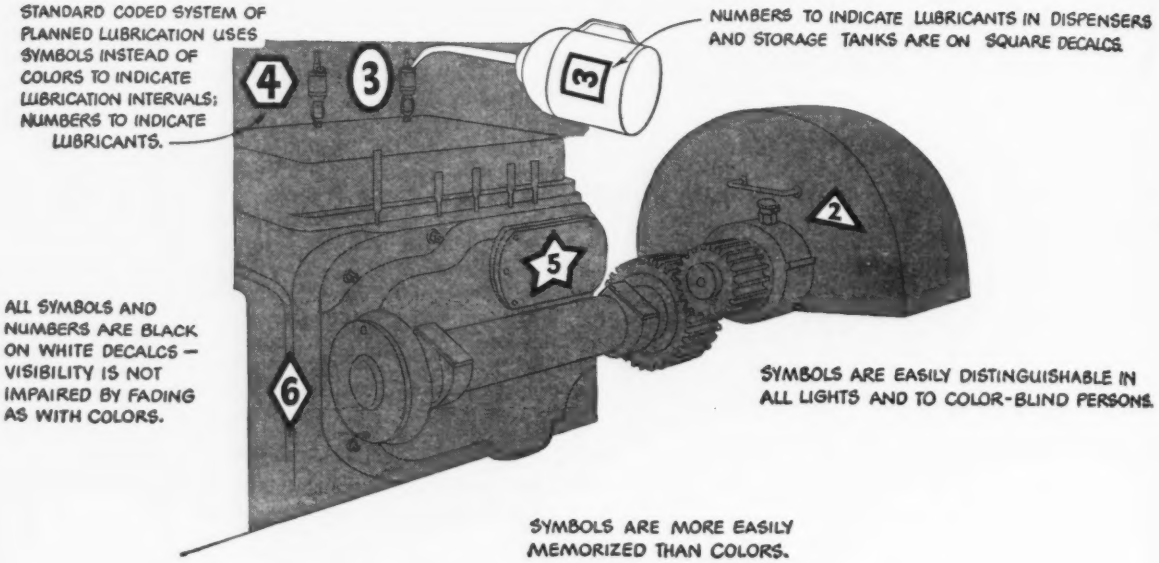
### INSURED UNEMPLOYMENT

*(Under all programs: figures in thousands. From Social Security Board)*

| Week ending | Ariz. | Colo. | Idaho | Mont. | Nev. | N. Mex. | Utah | Wyo. | Total Mtn. | Calif. | Ore. | Wash. | Total Pacific |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 4 | 4.3 | 2.5 | .7 | 1.1 | 1.3 | 1.7 | 2.3 | .2 | 14.1 | 138.3 | 8.4 | 21.3 | 168.0 |
| Nov. 8 | 4.1 | 2.5 | 1.3 | 1.4 | 1.5 | 2.0 | 3.6 | .3 | 16.7 | 134.1 | 14.7 | 24.6 | 173.4 |
| Dec. 6 | 4.7 | 4.2 | 3.9 | 2.9 | 1.8 | 3.2 | 4.3 | .6 | 25.6 | 176.4 | 19.9 | 36.3 | 232.6 |
| Jan. 3 | 5.1 | 6.5 | 6.6 | 4.7 | 2.0 | 5.0 | 6.3 | 1.1 | 37.3 | 204.2 | 27.2 | 45.7 | 277.1 |
| Feb. 7 | 6.3 | 8.8 | 8.0 | 7.1 | 2.5 | 5.8 | 7.9 | 2.0 | 48.4 | 195.2 | 23.1 | 47.7 | 266.0 |
| March 6 | 7.1 | 10.3 | 8.1 | 7.9 | 2.5 | 6.0 | 7.5 | 2.0 | 51.4 | 228.9 | 24.0 | 47.1 | 300.0 |
| April 3 | 6.6 | 7.8 | 6.2 | 6.4 | 2.2 | 5.4 | 5.9 | 1.5 | 42.0 | 233.3 | 20.5 | 37.6 | 291.4 |
| May 1 | 5.5 | 6.2 | 3.7 | 4.0 | 1.9 | 3.5 | 4.3 | .8 | 29.9 | 220.6 | 16.5 | 31.5 | 268.6 |

# STANDARD ENGINEERS NOTEBOOK

CALOL RPM


STANDARD CODED SYSTEM OF PLANNED LUBRICATION USES SYMBOLS INSTEAD OF COLORS TO INDICATE LUBRICATION INTERVALS; NUMBERS TO INDICATE LUBRICANTS.
NUMBERS TO INDICATE LUBRICANTS IN DISPENSERS AND STORAGE TANKS ARE ON SQUARE DECALCS.
4
3
3
2
5
6
ALL SYMBOLS AND NUMBERS ARE BLACK ON WHITE DECALCS — VISIBILITY IS NOT IMPAIRED BY FADING AS WITH COLORS.
SYMBOLS ARE EASILY DISTINGUISHABLE IN ALL LIGHTS AND TO COLOR-BLIND PERSONS.
SYMBOLS ARE MORE EASILY MEMORIZED THAN COLORS.

# Free coded marking system stops lubrication mistakes

Here's a coded system of planned lubrication, developed by Standard of California's technical service, for plant and truck and car fleet operators in the Seven Western States. It will minimize breakdowns and maintenance costs wherever industrial machinery is used and lubricated.

By employing symbols instead of colors to indicate lubrication intervals, mistakes caused by color-blindness are completely eliminated...and chances of errors due to colors fading or changing appearance under different lighting conditions are avoided, too.

The symbols on decalcs indicate lubrication intervals; numbers inside the symbols indicate lubricants to use.

Standard Fuel and Lubricant Engineers or Representatives will install the Standard Coded System of Planned Lubrication in plants or for fleets at no charge. Decalcs, record charts for each machine, everything needed will be supplied absolutely free.

For this service or lubrication help of any kind in the Seven Western States, call your local Standard Representative in that area or write 225 Bush Street, San Francisco 20, California.

Trademarks "Calol," "RPM," Reg. U. S. Pat. Off.

STANDARD TECHNICAL SERVICE will make your maintenance job easier. If you have a lubrication or fuel problem, your Standard Fuel and Lubricant Engineer or Representative will gladly give you expert help; or write Standard of California, 225 Bush Street, San Francisco 20, California.

**FOR EVERY NEED A STANDARD OF CALIFORNIA JOB-PROVED PRODUCT**

(Continued from page 27)

preceding year, the Federal Reserve Bank reports. For the entire country the increase was 8 per cent. The increase is attributed to increased receipts from the sale of goods and additional borrowing. In retail and wholesale trade, however, the 12th District showed an increase of only 2 per cent, as against 7 per cent for the country as a whole, while personal deposits were off 2 per cent as compared with a gain of 4 per cent in the entire country. Less favorable Western farm income is given as part of the cause.

Department store sales in the West in March failed to match January figures except in southern California, eastern Washington and northern Idaho. Pacific Northwest carloadings in April declined nearly 21,000 cars from April of 1947, although above 1945 and 1946. Coal, fruit and ore loadings were the only categories to go up.

## Electric Energy

An oversupply of water threatened to cause a power shortage in the Pacific Northwest at the end of May in contrast to the water shortage which had the same effect in California during the winter. A late spring with heavy rains throughout the Northwest brought the spring runoff in the Columbia River and its tributaries to a head simultaneously with conditions closely approximating a 50-year flood in many localities. The high water so reduced turbine heads on main stream plants that generating capacities were seriously reduced and consumers were asked to reduce power consumption to bare necessities. Bonneville's customery 575,000 to 580,000 kw. generating capacity was cut to about 170,000.

Elsewhere in the West power supply was good except for Arizona, which by now is getting used to getting along without much electricity. Rate of increase in demand for electric energy has tended to slow down slightly in comparison with previous years.

## Fuels

Bureau of Mines reports that capacity of crude oil refineries in the five Pacific Coast states has grown 18 per cent since 1941. Efficiency has sharply improved lately, as indicated by the fact that two-thirds of the gain came about in 1947, although only one refinery was built last year. Cracked gasoline production has doubled; natural gasoline output, though off slightly, comes from 28 per cent fewer plants.

Military strategy involved in the international race for oil is revealed by A.P.I. Vice-president Jake L. Hamon's estimate that without Middle East petroleum, U. S. participation in a war would mean "severe rationing to provide the 8,000,000 daily barrels needed for this country's fighting machine." He said use of more jet planes would ease the petroleum situation because a barrel of crude oil can yield more kerosene, basic jet engine fuel, than high-octane aviation gasoline. The U. S. and western hemisphere deficit, in case of a military emergency, has been estimated as high as 2,000,000 barrels a day.

An idea of the rich fields capable of exploitation abroad was given by Harold F. Sheets, formerly of Socony-Vacuum, who said average production of all U. S. wells is about 12 barrels a day—or 35 barrels if "stripper" wells are excluded—whereas in Venezuela and Colombia output of the average well is 200 barrels a day, and in the Arabian peninsula, better than 4,500 barrels. Development is costly, however, one U. S. company estimating that for every dollar it spends in the Middle East for producing and refining oil, it will spend $1.07 for facilities and services which in America are provided by the surrounding community and local governments. Thus a billion dollars may well be spent there by American companies in the next four or five years.

More than 20 per cent of the dollar value of Marshall Plan aid will consist of petroleum products, Sheets points out.

Important discoveries by Tide Water Associated in the Zaca field in Santa Barbara County,

(Continued on page 31)

### ELECTRIC ENERGY

*(Production for Public Use—In thousands of kilowatt hours. Source: Federal Power Commission)*

| | Mountain | | Pacific Northwest | | California | | Total Pacific | |
|---|---|---|---|---|---|---|---|---|
| | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 |
| October | 992,528 | 1,059,691 | 1,251,343 | 1,422,487 | 1,523,254 | 1,654,464 | 2,774,597 | 3,076,951 |
| November | 937,678 | 1,064,947 | 1,302,623 | 1,484,350 | 1,443,167 | 1,531,154 | 2,745,790 | 3,015,504 |
| December | 1,002,170 | 1,191,939 | 1,413,478 | 1,606,168 | 1,490,316 | 1,620,287 | 2,903,794 | 3,226,455 |
| | 1947 | 1948 | 1947 | 1948 | 1947 | 1948 | 1947 | 1948 |
| January | 1,061,564 | 1,228,508 | 1,477,873 | 1,635,440 | 1,466,716 | 1,605,642 | 2,944,589 | 3,241,082 |
| February | 962,756 | 1,168,514 | 1,328,994 | 1,539,841 | 1,301,334 | 1,514,611 | 2,630,328 | 3,054,452 |
| March | 1,041,287 | 1,200,824 | 1,454,305 | 1,628,060 | 1,531,005 | 1,572,699 | 2,985,310 | 3,200,759 |

### WHOLESALERS' SALES

*In thousands of dollars. Percentage changes are from corresponding month of preceding year. From Bureau of the Census.*

**MOUNTAIN**

| | Automotive Supplies | Change | Electrical Goods | Change | Furn. and house furn. | Change | Groc. and foods exc. farm prod. | Change | General Hardware | Change |
|---|---|---|---|---|---|---|---|---|---|---|
| Oct. | 828 | + 5 | 4,104 | + 58 | 397 | —18 | 5,227 | + 9 | 2,350 | +33 |
| Nov. | 654 | +24 | 3,924 | + 51 | ... | .. | 3,906 | — 1 | 2,015 | +16. |
| Dec. | 635 | + 3 | 5,368 | + 27 | ... | .. | 3,647 | — 7 | 1,513 | — 3 |
| Jan. | 476 | 0 | 2,712* | + 46 | 406 | + 9 | 1,442 | .... | .... | .... |
| Feb. | 676 | — 1 | 2,808 | + 28 | ... | .... | 1,568 | . .. | .... | .... |
| March | 631 | — 6 | 3,390 | + 34 | 395 | +20 | 2,055 | .... | .... | .... |

**PACIFIC**

| | | | | | | | | | | | Industrial Supplies | Change | Lumber & bldg. mat. | Change | Mch. equip. and supplies excl. elec. | Change | Metals | Change |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. | 3,245 | —11 | 18,232 | + 39 | 2,126 | — 1 | 11,574 | + 6 | 8,915 | + 5 | 603 | + 3 | 1,696 | +55 | 791 | —10 | 818 | + 5 |
| Nov. | 1,790 | — 5 | 13,345 | + 30 | 329 | + 34 | 13,838 | + 3 | 7,260 | +14 | 466 | —26 | 1,682 | +42 | 561 | —34 | 694 | +13 |
| Dec. | 3,560 | —13 | 21,380 | + 37 | 1,581 | + 5 | 13,302 | — 5 | 7,480 | — 2 | 615 | —12 | 1,444 | +36 | 627 | —32 | 670 | + 7 |
| Jan. | 1,719 | —18 | 10,858* | + 31 | 1,634 | + 9 | 3,475 | .... | 6,131 | + 6 | 660 | —17 | 1,732 | +30 | 521 | —13 | 727 | + 5 |
| Feb. | 2,401 | —19 | 11,542 | + 22 | 341 | + 20 | 3,289 | .... | 7,277 | — 2 | ... | .... | 1,712 | +48 | 774 | —22 | 751 | +17 |
| March | 2,601 | —16 | 13,550 | + 41 | 285 | + 42 | 2,889 | .... | 8,626 | +10 | 595 | + 7 | 1,685 | +28 | 857 | —17 | ... | .... |

*Full-line wholesalers.

### INDEX OF DEPARTMENT STORE SALES

*Index numbers, 1935-39 daily average=100 with seasonal adjustment. Compiled by Federal Reserve Bank.*

| | Total 12th Fed. Res. Dist. | | Southern California | | Northern California | | Portland | | Western Washington | | Eastern Washington and northern Idaho | | Utah and southern Idaho | | Phoenix | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 |
| October | 319 | 324 | 349 | 349 | 284 | 286 | 288 | 325 | 353 | 363 | 276 | 286 | 301 | 294 | 346 | 374 |
| November | 320 | 340 | 355 | 371 | 287 | 305 | 287 | 330 | 347 | 364 | 255 | 278 | 289 | 313 | 361 | 437 |
| December | 321 | 352 | 343 | 388 | 287 | 318 | 304 | 345 | 348 | 363 | 312 | 340 | 366 | 358 | 423 | 477 |
| | 1947 | 1948 | 1947 | 1948 | 1947 | 1948 | 1947 | 1948 | 1947 | 1948 | 1947 | 1948 | 1947 | 1948 | 1947 | 1948 |
| January | 314 | 340 | 338 | 373 | 275 | 291 | 301 | 352 | 330 | 349 | 328 | 334 | 365 | 380 | 411 | 457 |
| February | 311 | 319 | 341 | 365 | 267 | 282 | 308 | 301 | 329 | 313 | 312 | 291 | 343 | 321 | 419 | 441 |
| March | 319 | 331 | 339 | 374 | 281 | 283 | 300 | 318 | 336 | 336 | 329 | 341 | 366 | 331 | 432 | 448 |

### FREIGHT

Cars of revenue freight, railroad carriers in 11 Western states.

*(Compiled from Assn. of Am. R.R. weekly reports)*

| | Carloadings | | Received from Eastern Connections | |
|---|---|---|---|---|
| | 1946 | 1947 | 1946 | 1947 |
| October | 786,228 | 701,972 | 398,110 | 382,413 |
| November | 662,225 | 699,897 | 309,743 | 340,873 |
| December* | 526,827 | 519,397 | 289,873 | 281,887 |
| | 1947 | 1948 | 1947 | 1948 |
| January | 480,719 | 472,567 | 250,315 | 250,104 |
| February | 509,715 | 463,924 | 288,172 | 271,370 |
| March† | 656,920 | 600,715 | 350,527 | 313,850 |

*5-week period. †Incl. 4 weeks of following month.

### BANK LOANS

*Industrial, commercial and agricultural*
*(In millions of dollars)*

From weekly reporting member banks of Fed. Res. System in 7 western cities: L.A., S.F., Portland, Seattle, Tacoma, Spokane, and Salt Lake.

(Average of Wednesday reports)

| | |
|---|---|
| 1947 | |
| December | 1,943 |
| 1948 | |
| January | 1,976 |
| February | 1,999 |
| March | 2,000 |
| April | 1,992 |
| May | 1,983 |

### BANK DEPOSITS

*(In millions of dollars—adjusted)*

Daily average month, all member banks in 12th Fed. Res. Dist. Demand deposits excluding U. S. Gov't deposits, cash items in process of collection, and interbank deposits.

| | Net Demand Deposits | Federal Time Deposits |
|---|---|---|
| 1947 | | |
| October | 8,905 | 5,949 |
| November | 8,978 | 5,949 |
| December | 9,114 | 5,938 |
| 1948 | | |
| January | 9,095 | 6,015 |
| February | 8,836 | 6,044 |
| March | 8,685 | 6,065 |
| April | 8,676 | 6,036 |

# AVAILABLE NOW!

# STRAN-STEEL FRAMING MEMBERS IN STOCK LENGTHS

### HERE'S WHAT THEY ARE

Stran-Steel framing members are high-quality strip-steel, factory-punched for pipes, wiring and placing of screws. They may be joined by self-tapping screws or welding. No special architectural problems are imposed. The patented nailing groove of the joists and studs deforms and clinches nails in a grip of steel, so collateral materials can be nailed directly to the framing. Any structure, up to 2-½ stories, can be erected quickly and durably with ordinary carpenter tools.

### ADVANTAGES

Rugged simplicity enables expansions and alterations to meet changing needs. Nailing grooves and openings for screws and equipment assure adaptability and low-cost construction. Steel insures greater stability, ruggedness and long life.

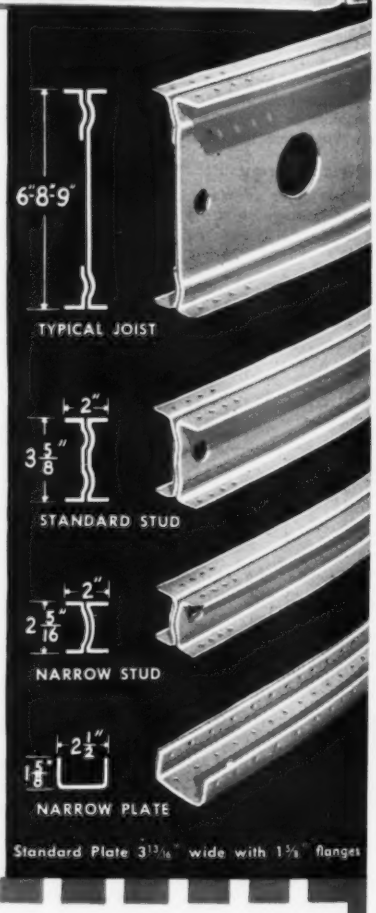
### HERE'S WHERE TO USE THEM

Stran-Steel framing is proved superior for construction of interior partitions, tool cribs, shelving supports, railings, suspended ceilings, loading platforms, duct work framing and other miscellaneous jobs, as well as for industrial and commercial buildings.

You can save time in construction by stocking Stran-Steel framing members to meet your most likely requirements.

### NOW'S THE TIME TO ORDER!

Attach the coupon below to your letterhead for prices on the items you need.




YOU NAIL TO STRAN-STEEL FRAMING

**GREAT LAKES STEEL CORPORATION**
**STRAN-STEEL DIVISION • UNIT OF NATIONAL STEEL CORPORATION**
***Manufacturers of the famous Quonset Buildings***

**GREAT LAKES STEEL CORPORATION**
**Stran-Steel Division, Dept. 44**
**Penobscot Bldg.**
**Detroit 26, Michigan**

**Please quote prices on the following, for immediate delivery.**

| Quantity | Gauge | Item | Length |
|---|---|---|---|
| | 16 | 2 x 6 JOISTS | 14' |
| | " | " | 16' |
| | " | " | 18' |
| | " | " | 20' |
| | " | " | 22' |
| | " | " | 24' |
| | " | " | 26' |
| | " | " | 28' |
| | " | " | 30' |
| | 16 14 | 2 x 8 JOISTS | 14' |
| | 0 0 | " | 16' |
| | 0 0 | " | 18' |
| | 0 0 | " | 20' |
| | 0 0 | " | 22' |
| | 0 0 | " | 24' |
| | 0 0 | " | 26' |
| | 0 0 | " | 28' |
| | 0 0 | " | 30' |
| | 0 0 | 2 x 9 JOISTS | 14' |
| | 0 0 | " | 16' |
| | 0 0 | " | 18' |
| | 0 0 | " | 20' |
| | 0 0 | " | 22' |
| | 0 0 | " | 24' |
| | 0 0 | " | 26' |
| | 0 0 | " | 28' |
| | 0 0 | " | 30' |

| Quantity | Gauge | Item | Length |
|---|---|---|---|
| | 18 | 2⅝" STUDS | 20'-0" |
| | 16 | 2⅝" STUDS | 8'-0" |
| | " | " | 8'-4" |
| | " | " | 10'-0" |
| | " | " | 12'-8" |
| | " | " | 20'-2" |
| | " | " | 25'-0½" |
| | " | " | 30'-0" |
| | " | 3⅝" STUDS | 8'-0" |
| | " | " | 8'-4" |
| | " | " | 10'-0" |
| | " | " | 12'-8" |
| | " | " | 20'-0" |
| | " | " | 25'-0½" |
| | " | " | 30'-0" |
| | " | 3¾" CHAN'L PLATE | 22'-0" |
| | " | 2½" " | 22'-0" |

***Note: Stran-Steel framing is available in special lengths, if the identical item is ordered in quantities of 11,000 lineal feet or more.***

(Continued from page 29)

California, have added 14,000,000 barrels to U. C. crude oil reserves. Production has just been obtained at a depth of 14,309 feet from a well west of Casper, Wyoming, said to be the world's deepest producer.

Bituminous coal production is holding up well in the intermountain area. Operations are generally on a five or six day per week basis, depending upon the availability of railroad cars. Barring labor difficulties, the outlook is for a high level of production throughout the summer. Producers, however, anticipate some softening in the market before fall brings the heavy seasonal demand.

## Chemicals

Fertilizer manufacturing in the West has been dealt a heavy blow by the drying up of ammonia shipments in the area, because eastern ammonia producers have found it more profitable to keep the ammonia at home for conversion into ammonium sulphate, one of the principal ingredients of commercial fertilizer. Until Shell Chemical's new ammonia plant at Shellpoint, California, is completed next year, there is not much hope for change, and Western sulphuric acid production, which has been greatly increased this year, is now having a hard time to find a market. The big government war plant at Salem, Oregon, where fertilizer had been produced by Columbia Metals for the last two years, has been closed since the end of March.

Soda ash demand is easing up somewhat, partly because of increased production, but also because the glass factories have pretty well caught up with the big peak of demand. Agricultural chemicals with the exception of parathion are in good supply, and there is plenty of DDT. On the other hand, the flood damage in the Pacific Northwest held possibilities of either vastly increased or diminished demand.

## Steel

Not much immediate change in the steel picture has resulted from U. S. Steel Corporation's action in taking the first steps to make the Geneva base price for steel the same as eastern points. Other steel companies have not yet followed suit in reducing prices on plates, structurals, wire, etc., while many other items will not be affected until hot-rolled coils are produced at Geneva. Also, the delivered price of steel is so high that a $4 a ton reduction is not highly important.

Ship-wrecking operations along the coast will supply enough scrap to last through the year, it is expected, except for southern California, where the wreckers are just about out of ships.

Short tons of steel consumed in shipments of metal cans in the West are reported by the Census Bureau, as follows:

| | 4th Quarter 1947 | 1st Quarter 1948 |
|---|---|---|
| Mountain states | 3,236 | 1,981 |
| Pacific and Hawaii | 124,180 | 75,910 |

## Non-ferrous Metals

Non-ferrous metal production is holding to the high peacetime level which has been maintained since the first of the year. Demand continues strong and the only factor currently on the horizon which threatens a substantial production drop is labor difficulties. With the International Union of Mine, Mill & Smelter Workers split wide open over communism anything can happen.

## Canning and Packing

The seven-year honeymoon of California canneries is at an end and the prewar situation of carryovers and hesitant bankers is returning. The trees don't know the war is over, however, and a big crop of peaches is in the making. Apparently it is a case of the canners having stripped themselves of ready cash to improve their plants and now finding the going rough for the time being. In the long run, however, the mechanization of canneries may so reduce labor costs as to enable the industry to surmount the postwar hurdles.

Carryover figures as of May 1 show 1,743,393 cases of cling peaches on hand, about half of which is listed by the Canners League of California as sold, which in prewar times would have been described as a "merchandising carryover." Price to the growers for peaches is likely to be $60, as against a reduction to $50.50 which the growers made last year of their own initiative. There were 788,315 cases of apricots, 528,342 cases of fruit cocktail, 327,690 cases of freestone peaches and 184,317 cases of pears also on hand May 1. The situation was worse with tomato juice, there being 3,028,233 cases on hand, and 1,944,849 cases of tomatoes.

California canned asparagus pack has been hit by strikes in the fields, and the outturn may fall below 2,000,000 cases. More than 1,000,000 pounds of asparagus have gone into quick freezing. Canned spinach pack probably will be around 1,000,000 cases, less than in recent years because of no fall pack in '47 and bad weather conditions this spring. California green lima beans acreage contracted by canners and freezers is 19,000 acres, compared to 15,270 acres harvested in 1947 and 7,989 in 1946. Greatest gain in acreage is San Joaquin Valley.

Cold, wet weather in May continued to slow fruit and vegetable crops in the Pacific Northwest with threats of reducing harvests. Soft fruits were estimated to be off from 25 to 60 per cent.

Northwest Canners Association stocks on hand reports as of May 1 were: freestone peaches, 226,104 cases; purple plums, 809,715 cases; pears, 775,812 cases; apricots, 42,709 cases; sweet cherries, 28,100 cases; apples, 187,650 cases; applesauce, 40,991 cases.

Pacific oyster packers assert that a ruling of the Food and Drug Administration will force the oyster industry in the Northwest out of business. The administration has ordered that oysters be packed with a cut-out weight of 6½ ounces to the can. Northwest oyster canners say that Pacific oysters crush when packed that tightly and the alternatives are either to close the canneries or to use a label stating that the product does not comply with federal regulations. The matter has been taken before the U. S. Circuit Court of Appeals.

(Continued on page 33)

### BITUMINOUS COAL AND LIGNITE

*(In thousands of tons. From Bureau of Mines)*

| | (Colo.-N. Mexico) | | (Wyoming) | | (Utah) | | (Montana) | | (Wash.-Alaska, and Oregon) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 |
| October | 828 | 640 | 903* | 797 | 627 | 505 | 402 | 318 | 151 | 152 |
| November | 559 | 723 | 636* | 778 | 442 | 581 | 308 | 309 | 115 | 145 |
| December | ... | 885 | ... | 827 | ... | 715 | ... | 330 | ... | 164 |
| | 1947 | 1948 | 1947 | 1948 | 1947 | 1948 | 1947 | 1948 | 1947 | 1948 |
| January | 971 | 860 | 894 | 625 | 776 | 770 | 420 | 279 | 150 | 153 |
| February | 810 | 770 | 738 | 634 | 770 | 660 | 298 | 262 | 131 | 144 |
| March | 768 | 419 | 717 | 341 | 753 | 321 | 286 | 281 | 143 | 129 |

### PETROLEUM

(California, Oregon, Washington, Arizona, Nevada)
*(From Bureau of Mines)*

| | CRUDE PRODUCTION (Barrels, daily avg.) | TOTAL DELIVERIES (Thousands of barrels daily) GASOLINE | | GAS OIL & DIESEL | | HEAVY FUEL OIL | | ALL PRODUCTS | |
|---|---|---|---|---|---|---|---|---|---|
| | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 |
| September | 914,747 | 318 | 370 | 77 | 113 | 339 | 386 | 860 | 1,030 |
| October | 921,463 | 320 | 356 | 100 | 139 | 326 | 375 | 870 | 1,010 |
| November | 929,552 | 293 | 317 | 128 | 138 | 363 | 380 | 896 | 978 |
| December | 927,197 | 308 | 349 | 146 | 173 | 416 | 441 | 993 | 1,091 |
| | 1948 | 1947 | 1948 | 1947 | 1948 | 1947 | 1948 | 1947 | 1948 |
| January | 930,953 | 313 | 323 | 177 | 162 | 420 | 368 | 1,035 | 990 |
| February | 933,622 | 320 | 313 | 142 | 204 | 425 | 394 | 1,012 | 1,053 |
| March | 29,138 | 304 | 334 | 117 | 170 | 390 | 390 | 932 | 1,036 |

### IRON AND STEEL

Western Area of the United States
*From American Iron and Steel Institute (in net tons)*

| | Pigiron Output | Percent of Capacity | Steel Output | Percent of Capacity |
|---|---|---|---|---|
| October | 193,489 | 89.8 | 378,227 | 92.0 |
| November | 184,861 | 88.6 | 374,169 | 94.0 |
| December | 209,815 | 97.6 | 397,905 | 97.0 |
| January | 211,208 | 95.4 | 398,553 | 92.8 |
| February | 198,927 | 96.2 | 379,291 | 94.5 |
| March | 186,966 | 84.5 | 395,781 | 92.1 |
| April | 133,030 | 62.1 | 310,108 | 74.5 |

### Alloy Steel

| | Output | Carbon Ingots, Hot Topped* |
|---|---|---|
| October | 5,855 | 11,769 |
| November | 5,318 | 10,434 |
| December | 3,717 | 9,134 |
| January | 3,445 | 8,588 |
| February | 4,888 | 4,850 |
| March | 7,286 | 5,447 |
| April | 4,806 | 4,255 |

*Included in total steel.

### COPPER

*(Short tons. From U. S. Bureau of Mines)*

| | ARIZONA | | UTAH | | MONTANA | | NEW MEXICO | | NEVADA | | TOTAL WEST'N STATES | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 |
| October | 30,650 | 30,836 | 17,700 | 16,470 | 4,800 | 4,690 | 4,195 | 5,558 | 3,600 | 3,990 | 61,770 | 62,373 |
| November | 28,300 | 28,885 | 17,425 | 16,155 | 4,800 | 5,100 | 4,000 | 5,435 | 4,200 | 3,900 | 59,498 | 60,269 |
| December | 30,300 | 30,000 | 17,800 | 22,500 | 4,850 | 4,900 | 4,100 | 5,200 | 4,400 | 4,000 | 62,245 | 67,375 |
| | 1947 | 1948 | 1947 | 1948 | 1947 | 1948 | 1947 | 1948 | 1947 | 1948 | 1947 | 1948 |
| January | 30,700 | 31,235 | 22,550 | 22,360 | 5,350 | 5,000 | 4,614 | 6,046 | 3,800 | 3,500 | 67,383 | 68,920 |
| February | 29,450 | 29,300 | 21,800 | 21,980 | 5,050 | 4,900 | 4,732 | 5,652 | 4,000 | 3,000 | 65,383 | 65,547 |
| March | 32,000 | 31,325 | 24,250 | 23,075 | 5,500 | 5,640 | 4,840 | 5,896 | 4,100 | 3,100 | 71,112 | 69,857 |

UNION PACIFIC

# The Governor of California *invites You*

State of California
GOVERNOR'S OFFICE
SACRAMENTO

EARL WARREN
GOVERNOR

To American Industry:

In California we are currently celebrating the centennial anniversaries of the beginnings of our State. We gain much inspiration from our review of the progress which has been made in the comparatively short span of one hundred years.

During the past eight and one-half years alone California's population has increased by 47 per cent and our industry and agriculture have risen to positions of great importance in the economic life of the nation.

Our tremendous reserves of natural resources and our strategic world trade position on the shores of the Pacific Basin assure California's continued progress in the years to come.

I am happy, therefore, to join in inviting you to investigate the opportunities for expansion which exist in the many communities of our State.

Sincerely,

Governor

Earl Warren

* One of a series of advertisements based on industrial opportunities in the states served by Union Pacific Railroad.

Unite with Union Pacific in selecting sites and seeking new markets in California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, Oregon, Utah, Washington, Wyoming.

*Address Industrial Department, Union Pacific Railroad
Omaha 2, Nebraska

**UNION PACIFIC RAILROAD**

*Road of the Daily Streamliners*

(Continued from page 31)

## Sugar

Slowing down of distribution in recent months has brought to light what had been generally suspected but not fully realized, that consumers had built up their stocks strongly in 1947 and are now drawing on that supply instead of buying from refiners. Reduction of the consumption quota in the continental United States by 500,000 tons down to a total of 7,000,000 cuts mostly in Cuba cane and so will affect Atlantic and Gulf refiners without touching the cane and beet refineries in the West. With the price of sugar sliding downhill, however, beet growers are not likely to cut last year's prices, which ranged from $12.30 a ton (estimated) in California, and Montana, down to $11.90 in Idaho and Wyoming, $11.60 in Utah and $11.50 in Colorado.

Harvesting in Hawaii has been making up in recent months for earlier delays caused by heavy rain, and as a result the crop estimate has been raised 10,000 to 13,000 tons, making the total crop estimate 840,000 tons.

## Lumber

Production along the Oregon and Washington Coast was curtailed during part of April and much of May by the boommen's strike which closed virtually every major mill and many of the smaller sawmills. Average weekly production during April dropped to about 95 per cent of the 5-year average from the 113 per cent which had been registered during March. By the last week of May most mills had been reopened and higher production is expected to continue again.

The West Coast Lumbermen's Association reports for the first 17 weeks of this year show production running well ahead of last year with orders lagging slightly but still exceeding production by a slight margin. Shipments are ahead of last year, but are running behind both orders and production.

The Western Pine Association reports a similar situation with orders and production slightly ahead of last year and shipments slightly behind. Production, however, is lagging behind both orders and shipments. Although shipments to date this year have not quite caught up with orders, the former has been exceeding the latter for the first three weeks of May.

Bids for federally owned timber rose steeply at an auction for 25,000,000 board feet of peeper logs in Washington. Douglas fir was bid at $34.10 per thousand feet, about three times the appraised value and nearly an all-time high.

## Plywood

Some plywood mills in the Pacific Northwest were affected by the boommen's strike which closed sawmills in the area. Announcements of plans for new and expanded capacities continue to be heard.

## Building Materials

Deliveries of vitrefied clay pipe have been slowed down somewhat by bad weather in California which interrupted construction, but the demand has not slacked off. Supply of tile is gradually catching up and demand for building facings has slowed down a little. Cement situation unchanged, but demand for concrete blocks off somewhat. Total construction seems to be greater than last year at this time.

## Apparel

Failure of prices to recede as expected has left many apparel buyers in an awkward position. With sales slowing up, they have been buying cautiously, replacing items actually sold, instead of contracting for a normal season's requirements. Thus they have reduced inventories somewhat but have not been able to clear out large accumulations of shoddy, "war-quality" goods still on hand.

The buying public, now price-conscious and wary, will buy only the most attractive merchandise. With higher prices hinted by new inflationary trends, the trade is tempted to expand but finds that credit is tighter because banks and credit men are not as willing to advance money against present inventories as a year ago.

Nat C. Green, Bank of America vice-president, told the Pacific Coast Garment Manufacturers in convention that "the period of slow accounts receivable is returning. . . . Manufacturers must decide whether or not they want to become bankers for retail stores . . . must check orders wisely, obtain up-to-the-minute credit information." He also advised the manufacturers to (1) let suppliers know the company's financial condition each month through balance sheets on a unit control basis; (2) beware withdrawal of capital for ventures outside the business; (3) avoid speculative buys on piece goods; (4) plan production and sales to make seasonal clean-ups on materials; (5) balance production and sales so seasonal orders can be filled promptly; and (6) not include too many numbers in the "line" of products.

## Flour

Grinds are light in Western mills in the present period of waiting until the buyers come into the market. Government buying in the West has been light, and most of the wheat is going to Atlantic and Gulf mills for grinding.

### LUMBER

*(In thousands of board feet)*

*From West Coast Lumbermen's Association (Douglas Fir, Sitka Spruce, Port Orford Cedar, West Coast Hemlock, Western Red Cedar):*

| Year through March | 1946 | 1947 | 1948 |
|---|---|---|---|
| Production | 1,770,866 | 1,890,785 | 2,046,528 |

*From Western Pine Association figures (Idaho White Pine, Ponderosa, Sugar Pine and associated species):*

| Year through April | 1947 | 1948 |
|---|---|---|
| Production | 771,624 | 832,929 |

### SOFT PLYWOOD

From Bureau of the Census
*(In thousands of square feet)*

| | 1946 | 1947 |
|---|---|---|
| September | 129,270 | 146,985 |
| October | 149,600 | 170,325 |
| November | 129,635 | 144,637 |
| December | 121,816 | 149,999 |
| | 1947 | 1948 |
| January | 140,058 | 159,395 |
| February | 129,622 | 156,285 |
| March | 139,670 | 185,716 |

### PULPWOOD
(Pacific Northwest)

*(Cords of 128 cu. ft., roughwood basis. Source: Bureau of Census)*

| | Receipts | Consumption |
|---|---|---|
| September | 459,427 | 264,641 |
| October | 334,649 | 281,753 |
| December | 250,992 | 253,600 |
| January | 235,036 | 280,630 |
| February | 208,941 | 273,886 |
| March | 232,880 | 299,217 |

### STRUCTURAL CLAY PRODUCTS

| | UNGLAZED BRICK (in thousands of standard brick) | | UNGLAZED STRUCTURAL TILE (short tons) | | VITRIFIED CLAY SEWER PIPE (short tons) | |
|---|---|---|---|---|---|---|
| | Mountain | Pacific | Mountain | Pacific | Mountain | Pacific |
| October | 9,701 | 23,160 | 2,426 | 3,066 | 2,575 | 12,119 |
| November | 9,701 | 28,983 | 2,745 | 2,632 | 2,066 | 13,175 |
| December | 7,919 | 12,881 | 1,797 | 2,213 | 1,869 | 12,506 |
| January | 7,784 | 14,551 | 1,582 | 2,607 | 2,129 | 12,342 |
| February | 6,225 | 9,955 | 1,678 | 1,649 | 2,098 | 11,878 |
| March | 7,229 | 16,491 | 2,291 | 3,088 | 2,172 | 15,004 |

### CEMENT

*(In thousands of bbls.; from U. S. Bureau of Mines)*

| | —California— | | Oregon - Wash. | | Colo.-Wyom. Mont. Utah - Idaho | |
|---|---|---|---|---|---|---|
| | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 |
| Oct. | 487 | 517 | 340 | 353 | 123 | 118 |
| Nov. | 624 | 581 | 367 | 400 | 144 | 132 |
| Dec. | 645 | 596 | 453 | 564 | 223 | 177 |
| | 1947 | 1948 | 1947 | 1948 | 1947 | 1948 |
| Jan. | 1,818 | 1,909 | 244 | 353 | 169 | 253 |
| Feb. | 1,600 | 1,880 | 325 | 354 | 184 | 193 |
| March | 1,896 | 2,049 | 517 | 545 | 313 | 314 |

### HOUSEHOLD FURNITURE

*Manufacturers' Shipments—11 Western States*
*From Bureau of the Census*
*(In thousands of dollars)*

| | Upholstered Furniture | Other Household Furniture | Total |
|---|---|---|---|
| 3rd quarter, 1947 | $11,047 | $15,929 | $26,976 |
| 4th quarter, 1947 | 13,336 | 21,098 | 34,434 |
| 1st quarter, 1948 | 10,633 | 20,739 | 31,372 |

### APPAREL

*(In thousands of dollars)*

Total Women's, Misses' & Juniors' Outerwear

| | Los Angeles | San Francisco |
|---|---|---|
| April | 7,118 | 1,721 |
| May | 4,505 | 1,731 |
| June | 4,188 | 1,383 |
| July, August, September | 23,245 | 6,699 |
| Oct., Nov., Dec. | 24,948 | 6,844 |

| | Men's Overalls (thousands of dozens) California | Men's Wool Work & Dress Trousers (thousands of units) California |
|---|---|---|
| July | 16.7 | 87.2 |
| August | 22.1 | 110.6 |
| September | 26.1 | 102.2 |
| October | 29.2 | 128.3 |
| November | 24.7 | 100.1 |
| December | 22.0 | 103.3 |

### BEDDING PRODUCTS

*Manufacturers' Shipments—11 Western States*
*From Bureau of the Census*
*(In thousands of dollars)*

| | Dual Purpose | Mattresses | Other Bedding Products* | Total |
|---|---|---|---|---|
| 3rd quar., 1947 | $2,416 | $8,718 | $3,460 | $14,594 |
| 4th quar., 1947 | 4,737 | 7,699 | 3,631 | 16,067 |
| 1st quar., 1948 | 3,850 | 6,253 | 2,676 | 12,779 |

*Includes metal beds and cots, Hollywood beds and headboards, bed springs and box springs.

### WHEAT FLOUR

*(In thousands of sacks; from Bureau of the Census)*

| | Ore.-Wash. | Montana | Utah | Colorado | California | Total |
|---|---|---|---|---|---|---|
| October | 1,760 | 336 | 322 | 484 | 447 | 3,349 |
| November | 1,583 | 311 | 281 | 446 | 385 | 3,006 |
| December | 1,446 | 282 | 272 | 481 | 364 | 2,845 |
| January | 1,480 | 275 | 264 | 486 | 363 | 2,868 |
| February | 1,250 | 275 | 254 | 360 | 269 | 2,408 |
| March | 1,288 | 296 | 309 | 501 | 293 | 2,687 |

**SAN FRANCISCO**
(Bay Area Plant in Emeryville)
65th & Hollis Sts., Emeryville, Calif.
Mail: Box 188, Emeryville, Calif.
Phone: Piedmont 5-8450, Enterprise 10176 (from S. F. Zone)

**LOS ANGELES**
4310 E. Bandini, Los Angeles
Mail: Box 3817, Los Angeles 54
Phone: Angelus 2-6141

# A Pair of Helping Hands

## for Western Industry

Two new Ryerson steel-service plants are now in full operation on the West Coast. Ryerson in Los Angeles was introduced to western industry a little more than a year ago. And now Ryerson in Emeryville is working closely with steel buyers of the San Francisco Bay Area and the Pacific Northwest.

You will find stocks at both plants surprisingly large and complete. Because current demand has reduced our tonnage, your requirements may not *always* be available, but our specialists will do everything possible to supply the steel you need—or a workable alternate. We believe our diversified stocks and experienced organization make a steel-service team that merits your confidence.

So we suggest that you get in touch with our nearest plant next time you need steel from stock. Even if your order only calls for a single piece, you're always assured of the same prompt, personal service.

Joseph T. Ryerson & Son, Inc. Plants at: Los Angeles, San Francisco, Chicago, St. Louis, Milwaukee, Detroit, Cincinnati, Cleveland, Pittsburgh, Philadelphia, Buffalo, New York, Boston.

**PRINCIPAL PRODUCTS: BARS—Carbon & Alloy, hot rolled & cold finished. STRUCTURALS—Channels, angles, beams, etc. PLATES—Sheared & U. M., floor plate. SHEETS—Hot & cold rolled, coated. TUBING—Seamless & welded mechanical & boiler tubes. STAINLESS—Allegheny metal plates, sheets, tubing, etc. REINFORCING—Bars & accessories. BABBITT METAL, MACHINERY & TOOLS, etc.**

# RYERSON STEEL

## PICTURE OF THE MONTH

**THE INDUSTRIALIZED WEST . . .** *Although this looks like just another day along the San Francisco waterfront, it is a scene filled with historic importance for Western manufacturers. It shows arrival of first of three shipments comprising an aluminum foil mill bought in Germany by Permanente Metals Corporation for erection on site of former magnesium plant near San Jose, California. Expected to be in production by early 1949, the mill marks a long forward step in Western light metals facilities and will greatly amplify packaging resources in this area.*

# Alert Planning Will Supply West With Skilled Labor

EXPANSION of the West is creating an unusual demand for a new crop of skilled manpower to keep industry running, but the West seems to be farther along the road toward meeting its future labor supply problem than the rest of the country.

While the West's population is only 10 per cent of the national total, its 45,000 apprentices acquiring skills in more than 200 different trades and occupations under training programs jointly sponsored by labor and management represent more than 25 per cent of the nation's total apprentices. In California alone nearly 30,000 apprentices are undergoing such training. Cooperating in this work are the various state apprenticeship agencies and the Bureau of Apprenticeship of the U. S. Department of Labor.

Nevertheless the problem of supply of skilled help is a monumental one, as was brought to light at a Western States Conference on Training held in May at Boyes Springs, California, the first of its kind on record. At this meeting the management, unions, federal and state officials reviewed training programs that are springing into being and discussed the needs still to be met. There were plenty of holes in the doughnuts apparent to all, but on the other hand a sizable quantity of doughnut to surround the holes.

Seventeen years of depression and war have cost the West a whole generation of skilled journeymen because so little training of apprentices was done during the period. Average ages of journeymen are high and replacements are scarce.

Aggravating the situation are the continuing westward flow of population and industry, increasing the demands for residential, commercial and industrial housing, electric power, water, fuel and equipment and supplies of all kinds. On top of these has been piled the international situation, with its $17,000,000,000 European recovery program and the $40,000,000,000 national defense program.

## WHAT LACK OF APPRENTICE TRAINING IS COSTING INDUSTRY

*COST.* "We are paying thousands of dollars a week in overtime penalties because of shortage of journeymen. At our Pueblo mill we have 45 roll turners and nine apprentices in the roll shop, but to keep the rolling mills supplied with rolls, it is necessary for all these men to work seven days a week. Sixth and seventh day overtime paid them results in 14.3 per cent added labor cost over a five-day week. Machine shop men are on a six-day week in order to accomplish all the necessary work. Sixth day overtime results in 8⅓ per cent added labor cost. To repair and rebuild our 16 open hearth furnaces we have 32 brick masons and no apprentices. We should have 35 brick masons and seven apprentices."—Herman F. Alvord, assistant superintendent, industrial relations, Colorado Fuel & Iron Corporation, Pueblo.

*EFFECTIVENESS.* "Due to war work or military service, today's journeyman has insufficient training to meet the requirements of the current trend toward automatic control of the manufacturing process, which requires a high degree of skill and technical training to fabricate, install and maintain. Blackboard lectures, exploded sketches, up-to-date textbooks and other better methods of on-the-job training can improve their skill." —Marshall L. Brink, assistant electrical foreman, American Potash & Chemical Co., Trona, Calif.

*COMPETITION.* "To compete with the mass production shops of the East and Middle West, we must have highly skilled journeymen able to produce at a high rate of output and bring unit costs down to competitive levels. Skills must take the place of elaborate machinery. Our Western plants are smaller, and must have a higher ratio of skilled to semi-skilled and unskilled men in order to compete. As of 1946 California had 14,295 manufacturing plants, of which 70.3 per cent employed less than 20 persons per plant, 15.6 per cent employed between 20 and 49 persons, and 14.1 per cent over 50 persons." — W. H. Oliver, Oliver United Filters, Oakland.

*SHORTAGES.* "A survey of the metal trades in southern California, as shown by information from 438 plants representing approximately 40 per cent of the total, indicates 100 per cent more skilled people needed at capacity production than are now employed. Of the number now employed, only 12 per cent of estimated requirements are being trained. Average age of workers, particularly highly skilled and all-around skilled, is over 35, with many 50 to 65 years old."—Robert Candee, director of training, Aluminum Company of America, Los Angeles.

*SUPPLY.* "In the area serviced by me, 400 more apprentices are needed in the machinist trade just to keep up a ratio of one apprentice to 10 journeymen. The supply of skilled and versatile workers is at a low ebb. A recent survey of the area shows average age of the machinist is over 50 years. The people trained during the war were only partially trained workers, who are now a handicap to peacetime production." — David M. Wilson, business representative, Intl. Ass'n of Machinists, Oakland.

*FUTURE NEEDS.* "Reckoning by past trends, electric light and power capacity in 11 Western states must be doubled in the next 18 to 20 years, but we only have a bare minimum of sufficient skilled employees now."— L. B. Morrell, international representative, IBEW, Alhambra, Calif.

Two steps taken at this conference may indicate trends toward balancing labor demand and supply. They were in the form of resolutions calling for (1) manpower surveys, (2) establishment of a sound retirement plan.

Need for the first was given as the rapidly increasing age of the average journeyman and the accelerated industrial and population expansion of the West. To determine the potential need for skilled craftsmen in all trades and crafts, labor and management were requested to make local surveys in cooperation with state and federal agencies.

The retirement plan approved in principle is for retiring journeymen who have worked a minimum of 20 years in the industry and have reached the age of 60. It would result in a tremendous reduction in production costs, it was asserted, more than justifying its establishment.

Two needs for a retirement plan were given: (1) The fact that in many trades and areas it will soon be necessary to establish a rotating or uniform balance between the incoming trainee mechanic and the senior mechanic who must soon retire to give the newcomer his rightful place in industry. (2) Where apprenticeship programs are badly needed there is considerable resistance by the elder mechanics who fear that these programs will result in their eventual displacement.

Joint Apprenticeship Committees, the keys to successful training in each local area, bear a heavy responsibility to get training standards raised to the point where good apprentices will be attracted. When W. H. Oliver, of Oliver United Filters, Inc., of Oakland — in the area where apprenticeship training has had outstanding success — started JAC work, he was skeptical of the entire program, because of the following questions in his mind:

1. Would it become embroiled in politics, city, county or state?
2. Could two opposing unions (CIO and IAM) sit down at the same table to work in complete harmony with each other and with Management representatives?
3. Would every shop always carry out its full responsibility?
4. Would labor insist on full training and not want to short-cut part of the program?
5. Would the schools give the type of training the Committee determined and see to it that the boys studied and not merely put in an appearance for their own attendance record or for the schools' finances?

All these fears were dissipated by the experience of Alameda and Contra Costa counties, and the nation's first mass graduation of apprentices under this program took place in Oakland in April. There were 620 apprentices, representing 38 crafts where a four-year course had been taken and three crafts with three years of instruction, and Assistant Secretary Andrews of the Navy Department gave the main address.

### Apprentice Ratio Too Low

Apprentice ratios are too low, warns P. W. Ackermann, assistant chief of personnel, Denver & Rio Grande Western Railroad. The general opinion and practice range from one apprentice for 10 journeymen up to one for four, but he reports that the larger railroads have found over a period of 20 years that approximately only one apprentice out of every three indentured completes his apprenticeship. On a basis of one apprentice to five journeymen this means only enough to take care of a 2 per cent turnover per year in the ranks of mechanics, and is far from being sufficient to offset the losses caused by retirements, deaths, resignations, promotions. His further warning:

"It will further be found that the *actual* ratio of apprentices to mechanics is usually less than the agreed ratio. An agreed ratio of one apprentice to every six mechanics actually means a ratio of anywhere between one to six and one to 11. On the basis of this ratio if there are 11 mechanics in a certain craft, only one apprentice may be employed and the second apprentice may not be employed until there are between 12 and 17 mechanics in that craft."

### Problem of the Older Man

When is a man too old to become an apprentice? In the state of Washington, a maximum age of 23 years plus the number of years the applicant was in the service is working out satisfactorily, according to Walter Lee, area supervisor at Seattle for the U. S. Bureau of Apprenticeship. Men of 25 resent to a certain extent the first two years of the required four years of

apprentice training, says Fred Kammerman of Salt Lake City, regional vice-president, Painting & Decorating Contractors of America.

Men with families find it unsound to enter into apprenticeships because the starting wage is low. Yet there is a way out. Edward J. Hibbert, American Can Company, San Francisco, reports that the company has some older men who are specialists or helpers, and the machinists' union has a system for taking some of these men at 35 and giving them credit for the time spent as a helper or specialist. Other observers say the specialists are easier to convert into journeymen than are novices, also that the presence of apprentices in a shop frequently encourages journeymen to take refresher courses in order to keep up with the youngsters.

More complete skill on the part of the present journeymen would decrease the number of additional journeymen needed, according to Charles Cooper, business manager of the Plumbers' and Steamfitters' Local, Albuquerque. Many journeymen now in the craft organizations are specialists on certain types of work who should be trained to do all the classes of work which journeymen of their crafts should be able to do.

In Albuquerque the union and the plumbing and pipefitting industry have built their own building to supply facilities to give the union members additional training necessary to make first-class journeymen of them. This school is capable of training 30 men at a time and is open four nights a week.

A survey by the Veterans' Administration in 1946 of 8,777 veteran trainees in southern California showed the starting wages of these men as follows:

Over $100 a month.....97.3%
Over $150 a month.....61.7%
Over $200 a month.....17.0%
Over $250 a month..... 3.4%
Over $300 a month..... .7%

Average beginning wage was $159.14 a month, and the average objective wage $273.11 a month.

### Subsidize or Not?

Should apprenticeship be subsidized?

Yes: — Government should subsidize training, so an apprentice may go to school one or two days a week without loss to the boy or the employer, just as the government subsidizes the farmer on potatoes and pork. Non-veteran boys spoiled by war wages, now not interested in working for $15 or $20 a week. Inducement needed. —Thomas Rotell, secretary, Pacific Coast District Metal Trades Council, San Francisco.

No: — Machinists attending classes in Portland have no subsistence, they pay their own tuition, and the classes have had practically 100 per cent attendance. In the past when they had subsistence, we had to battle with them to get them to go to school. — Glen Duncan, business representative, Intl. Ass'n of Machinists, Portland.

### How Applicants Are Screened

Boeing Airplane Company employs the aptitude tests used by the schools, and then put the applicant on a six-month probation period of employment before he actually begins his apprenticeship training .If a boy does not come up to standard during the six months, he is called before the JAC to ascertain why he is not doing satisfactorily. Easy to get trainees who can get mechanical side of instruction, but temperament and emotional stability are puzzling factors. Skagit Iron and Steel Works, Sedro Woolley, Washington, puts applicants on as helpers for four to six months before starting apprentice training.

Other recommendations for screening: Pre-apprentice classes in trade schools or vocational high school of two years duration, a three months' probationary period, and a combination of entrance aptitude, intelligence and trade tests. Los Angeles Veterans Service Center (and various others) use a counseling and testing service.

### Watching the Trainees' Progress

Apprentice should be rated monthly on an individual rating sheet by the foreman under whom he worked, for interest, initiative, industriousness, conduct, ability to learn quickly, craft skill, observance of safety rules, etc. Reports should be reviewed by the general foreman, master mechanic, shop superintendent and others concerned. By this method it is almost impossible for an apprentice to be working on an unscheduled operation not included in the training program. This system used by Denver & Rio Grande Western Railroad.

Journeymen instructors should attend a course up for foremen or lead men in order to understand their responsibility to the apprentices and learn methods of imparting information to them, according to W. G. Flannery, supervisor of apprenticeship, Colorado State Board for Vocational Education. In handling apprentices, they should take a psychological approach, says Maurice H. Barnes, Mine & Smelter Workers Union, American Potash and Chemical Company, Trona. Some apprentices are calm and undisturbed, others under the same conditions lose control and are inconsistent. Therefore, the journeyman should analyze the apprentice's disposition, temperament, reaction to others around him, his alertness and his ability to grasp what he is told.

### Too Much Class Work

Sending an apprentice to night school after he has worked all day is not uniformly successful. Often he is too tired and gets sleepy. Hugh Whisler, superintendent of the Clark County Public Utility District, Vancouver, Wash., who has taught many classes of apprentices, says there is too much emphasis on formal classes. He comments:

"Federal and state apprenticeship laws require that an apprentice must spend 144 hours per year in classroom work outside of regular working hours. That means the apprentice must attend night-classes at least four hours a week. In order to provide an opportunity to make up for classes missed, most apprentice classes are scheduled for two nights a week three hours, or three nights a week two hours. Anyone who has tried to teach, or even attend, such a class knows that this is too many hours per week. The apprentice can usually maintain this pace during the first year of his apprenticeship, while he is learning the fundamentals of his trade, but

**• Future apprentices have a personal interview with H. W. Rubottom, Educational Supervisor for Consolidated Vultee Aircraft Corporation's plant at San Diego, Calif.**

in the second and third years of his apprenticeship he finds the classes more and more irksome.

### Coordinator Desirable

"A competent coordinator could do a great deal toward maintaining interest in classes by advising the apprentices which of the available classes he might attend. If a certain apprentice lineman, for example, has outgrown the local lineman's apprentice class, he should be advised to register for more advanced and specialized work in some nearby college or technical school."

Full-time coordinators are considered desirable in larger cities by many of the people interested in apprenticeship programs, while in other areas the trend is toward designating some member of the JAC committee to do the coordinating.

To overcome the problem of apprentices enrolling in the class at various times throughout the year, and dropping out as they become journeymen, Arnold Hughes, assistant to the president and personnel director for Pacific Manufacturing Co. of Santa Clara, Calif, supplies the information that his JAC committee divides apprentices into three groups — beginners, intermediate, and advanced. Thus the instructor does not have to go back and explain what already has been taught.

Mileage to and from school in some rural areas where school training has been set up already has proved a stumbling block in regular attendance, according to Alfred Virden, secretary, United Meat Industries, Oakland. Consequently some thought should be given to starting home study courses, he advises Although it takes a good man to follow through, he will prove to be a good craftsman.

Duplication of effort in preparing related training courses in different states can be avoided. Here is how six states worked it out in 1946 for six crafts for the Union Pacific Railroad, as reported by Elmer H. Halstead, supervisor of public service training for Oregon:

California produced the boilermaker course; Oregon, the electrical; Idaho, the machinist; Utah, the sheet metal; Colorado, the blacksmith; Nebraska, the carmen craft.

In operating the program, a general Union Pacific Apprentice Committee composed of four members of management and four members of labor groups, under the guidance of the Federal office of Education, met as an advisory board, helped plan the program and acted as the general approval agency. In each state producing instructional material, a joint committee was appointed by labor and management to work with the course writer, make recommendations, and approve the material. The course writer was hired by the Departments of Vocational Education and course material was approved by the state committees and the general committee. After the course was written and approved by each state committee, the general committee reviewed and approved the material as presented with the understanding that minor changes, deletions and additions would be made as needed. The State Vocational Departments thoroughly edited the material and reproduced it for use in all the six states concerned. They are directly responsible for the quality of instruction and teacher training.

### Developing Executive Talent

Training might well include not only developing skills for those desiring to become machine operators, but also for the rarer man who has a good basic education and shows promise of being future executive material, according to Emanuel Fritz, associate professor of forestry, University of California.

Reading material should be made available to apprentices, he recommends, and they should be given opportunity to learn not only motions and operations, but the underlying causes for them. For executive training broader work is needed and candidates should be given some responsibility, perhaps on a specific project, to test their ability to plan work and supervise others.

An outstandingly important step was taken in April, according to Wm. F. Patterson, director of the U. S. Bureau of Apprenticeship, when a national joint apprenticeship committee for the metal working industry was organized. This committee will lead the way in formulating national apprentice standards for the various metal trades. The American Foundrymen's Association is working toward this goal.

**• H. A. Campion, Asst. Supt. of Schools, Los Angeles, is new chairman of California Apprenticeship Council. Members shown here are, l. to r. (seated): E. H. Vernon, Auto Mech. Loc. 1546, Oakland (new v.-chmn.); C. J. Harding, United Steelwkrs. Loc. 1981, Pasadena; E. C. Hinckley, Columbia Steel Co., Pittsburg; G. E. Ellicott, Loc. B-11, I.B.E.W., Los Angeles; A. J. Mooney, St. Dept. Industrial Rel., San Francisco. (Standing): S. L. Fick, Bur. Trade & Ind. Educ., Sacramento; C. A. Mayers, Genl. Bldg. Contr., Los Angeles; Mr. Campion; L. A. Ireland, S. F. Prtg. Tr. Coun. (past chmn.); P. R. Melnick, Meat Dirs., So. Calif., Los Angeles, and W. P. Kelly, Bay Co. Dist Coun. of Carpenters, San Francisco.**

**• Cadmium plating difficulties eased by magnet tester which checks to tolerances less than .0001. (The author demonstrates method.) At left is air limit gauge for checking bore diameter and taper of hardened valve guide used in Grove Regulator valves for accuracy and surface defects. By having this type inspection gauge on floor and in inspection department, equally accurate inspection is possible.**

# Process Inspection Raises Quality and Cuts Costs

By EDWARD J. RAVES
Plant Superintendent, Grove Regulator Company
Oakland, California

HOW many times have we heard the old saying "Experience is a great teacher," or "One profits by his mistakes." The writer on a recent tour was astonished at the number of manufacturing concerns which have not profited by their experience in the period of the last war on the necessity of inspection.

In some plants inspection was not worthy of the name. Today's industry is more tolerance conscious than ever before. It was inevitable. It is only a few years ago that industry thought that ±.001 was very exacting on production work.

Today ±.0001 can be accomplished without too much trouble if we have the proper machines and tools. This is where the tool engineer is a necessity to industry in the proper designing of tools, fixtures and jigs so that production quantities and qualities run a parallel course.

Edward J. Raves, plant superintendent, Grove Regulator Co., Oakland, Calif., is a native son who has devoted many years as machinist and tool maker. For a number of years he worked for various industrial firms both on the east coast and in the West, later giving much time to gage laboratory and process inspection.

Mr. Raves is a member of the Advisory Board, and national delegate from Golden Gate Chapter No. 28, American Society of Tool Engineers, where he has been a senior member since 1940.

The reputation of a manufacturer lies entirely on his ability to make a better product at a lower cost and consistently maintain a high standard of quality. That being the case, we must then agree that the inspection department is the company's and customer's guarantee on the quality of the product. This can be only accomplished by quality control, which in turn means process inspection, sometimes called "floor inspection."

### Organizing the Inspection Department

1. In organizing an inspection department the man selected for this responsible position as chief inspector should have past experience in general machining practice, layout, bench work, and should have a thorough knowledge of gaging in all its phases.

2. He must have the ability to create and maintain a well organized inspection department, to know how to properly plan the inspection procedure from the purchased raw material, semi-finished and finished parts that go to make the finished product.

3. The chief inspector should be responsible to management and management alone, but be coordinated with the engineering department. He must have tolerance, self-control and the ability to get along with other people. He must be able to meet in conference with management, the engineering and production control departments and be able to offer advice on troublesome production.

4. He must be able to train and instruct his inspectors so that each one will clearly understand his responsibilities and duties. If it is possible, each inspector should have a period of training in the final assembly and inspection departments. His education in these departments will give him a better understanding and appreciation of the responsibilities his position demands.

The writer has had the opportunity to observe in some plants throughout the country the attitudes of the engineering department, superintendents and foremen towards the inspection department. In all cases where cooperation was the keynote, one could readily see why production was at a high level, and production workers were more than willing to do their share.

### Plant Conferences

On new designs or changes to be released for production the chief inspector, superintendent and foremen should be called in by management and the engineering department for a conference so that everyone fully understands all the pertinent facts. That is the time for questions and answers, not when the product is on the production line.

In the industrial plants where interdepartmental jealousy was evident, one could observe lack of cooperation, poor quality of work and dissatisfied workers. Management should not under any circumstances tolerate conditions of this nature. These departments should be instructed that one of their main objectives is to be of service to promote production. Too often we will find that certain departments have built a little kingdom of their own (that goes for the inspection department, too) and that the rest of the company rotates around their little sphere.

### Receiving Inspection

Purchased items that are standard stock items need only a spot or visual inspection to see if they meet with the required standards. Other items such as raw materials should be inspected against the company's purchase order as specified.

In the case of pressure castings they should have a rough pressure test before being released to the stock room. This is quite obvious, yet it is surprising how many times this procedure has been disregarded, only to find out after the parts have been processed that a percentage will have to be rejected or a considerable amount expended for their salvage.

The amount of inspection required on finished and semi-finished parts received from outside vendors will depend upon the nature of the parts, the tolerance involved, the method and system as set up by the chief inspector. A copy of the purchase order should be sent to the chief inspector on all materials, and parts that will have to clear through the department.

### Process Inspection

Planning and organizing of process inspection is a very important function of the inspection department; its efficiency will speed up the subsequent inspection. Irrespective of any sampling method used (except 100 per cent final inspection), unless you have a good floor inspection, the defective parts will eventually reach the assembly line and on to the customer where trouble, delay and expense will occur.

**Chief inspector should be experienced in general machining practice, layout, bench, and gauging procedures.**

**He should have ability to organize his inspection department and plan procedure from raw stock to finished product.**

**He must have tolerance, self-control and be able to get along with other men.**

**He must be able to instruct his staff.**

The quality and accuracy of the work on the production line determines the load on the inspection and assembly departments as well as the machine scrap and salvage. The number of floor inspectors required will be governed entirely on production and the efficiency of the inspection department. The inspectors assigned to this type of work have a great responsibility. Before assigning an inspector on process work the following requirements should be checked:

1. Has the inspector been well trained?
2. Has he been fully instructed as to his responsibilities on the floor?
3. Has he spent some time in the assembly department (this is not mandatory)?
4. Has he the knowledge and skill in the use of all gages and gaging instruments to full advantage?

In some industrial plants the supervisors and production workers look upon the inspector as an unnecessary evil, especially in industrial plants where they have not had inspection, the burden up to that time being placed on the supervisor. The floor inspector can exercise a powerful influence on an operator's production in serving as a helper rather than a policeman. The supervisors and operators soon come to depend on the floor inspector's efficiency on decisions regarding quality. In reality the inspector is alleviating to a degree the burden on the supervisor allowing him more time on other important details.

### First Piece and Floor Inspection

Process inspection should include "First Piece Inspection." Before production can proceed, the floor inspector must inspect the first piece against the blue print. He must also check on the setup card to see if the proper gages are on the job for the operator to use. If the first piece is accepted the job is permitted to run. If not, the necessary corrections must be made before any further production can proceed.

The first piece should not be taken as a criterion for the balance of the run. As a matter of fact, several pieces should be checked right after the first piece to record if the parts are constant to specifications. Thereafter, a periodical check must be made on each machine's output to detect changes in the tolerances and quality of the product, and to determine the danger point as to the machine's personal equation.

There are several schools of thought in regard to the amount of authority the floor inspector can exercise. This will depend solely on the system and the method as outlined by management and the chief inspector. The following method used in quite a few industrial plants on the West Coast, including Grove Regulator Company, Oakland, California, has proven very satisfactory in all respects:

1. When the inspector finds a part in production not according to blue print specifications he should notify the operator immediately.
2. If the operator continues to run the job the inspector has the authority to stop production. He will then notify the foreman of the department with the full facts.
3. If the foreman permits the job to run the inspector should immediately make a verbal report to the chief inspector, later to be followed up with a written and signed report of the full facts in the case.
4. The chief inspector will immediately contact the foreman and plant superintendent. This method of direct action will minimize loss of time and production. The chief inspector should then report all the pertinent facts in writing to the plant and production managers.

However, situations of this nature will be a rare occurrence, if, as stated before, the keynote is cooperation in every detail. Quality must be built into a product; it cannot be inspected into it. No one in the organization is called upon to make more decisions regarding quality than the inspection department.

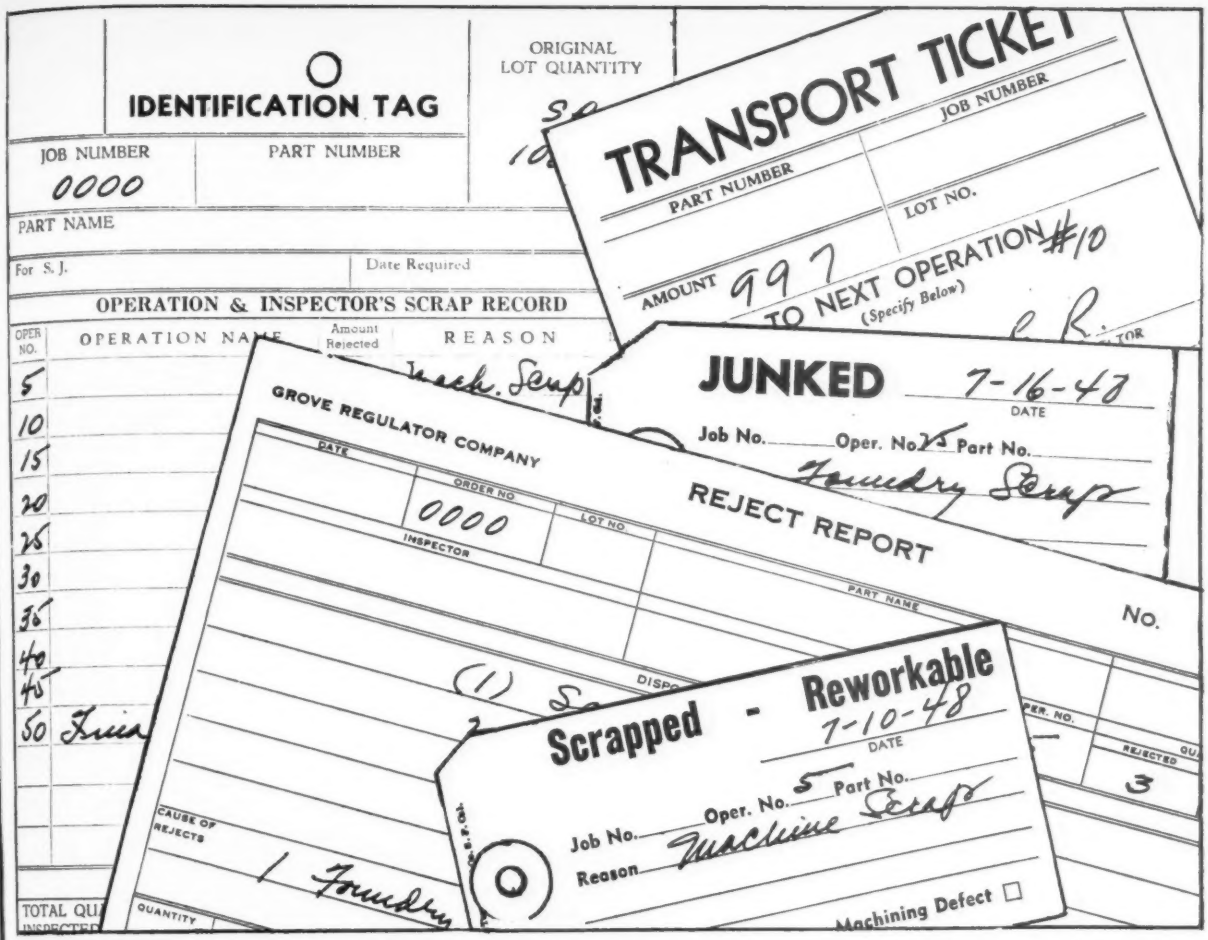
When we talk about quality as to the finish required, it might be well to mention that all drawings should have RMS standard designations. This will eliminate the ambiguity usually present on the finish marks on drawings in the smaller shops.

**Inspection steps should include "First Piece Inspection," checking initial article against blue prints and specs.**

**Periodic checks must be made to see that parts are constant and determine danger points as to each machine's personal equation.**

**Conferences on new designs or changes should aim at ironing out "bugs" before production starts, not afterward.**

It is not the inspector's job to tell the quality control department, if they have one, the tool engineering and engineering departments how to make the product. It is most assuredly his job to help discover




**• Samples of inspection forms used by Grove Regulator. Operation numbers on identification tag marked in multiples of five to permit adding intervening numbers for any extra immediate work. Floor inspector makes out transport ticket releasing work from one operation to the next. At final inspection in inspection department reject report is made out and small tags indicate disposition of the rejects.**

why a low quality of work is being produced. The foreman and inspector working together can make constructive suggestions for improvement. This might involve the tooling or fixture on that particular operation or the machine's personal equation.

On process inspection one of the important factors to remember is to keep work separate in regard to each shift and machine. There are occasions when more than one machine could be producing the same part. Therefore, each machine's output should be kept separate and properly identified as to the shift and the machine's number.

On rejected parts during process the floor inspector should make out a reject form stating what operation and reason for rejecting. If we have too many rejects for the same reason this data will enable the production control and tool engineering department to trace the responsibility for the imperfections and take measures to correct them.

### Final Parts Inspection

The number of pieces in a lot to be inspected will vary according to the predetermined inspection setup. Additional inspection may be required because of previous production difficulty as reported by the floor inspector. Some parts have functions or close tolerances that necessitate 100 per cent inspection.

The human element being what it is, there is also the difference of opinion of one or more inspectors checking similar parts. This may be due to the difference in technique used by each inspector. That is why we stress the importance of planning the proper inspection procedure in gages and inspection instruments on the line of production as well as in the final inspection.

At the Grove Regulator Company a greater percentage of the parts demand very close tolerances. We have found that 100 per cent inspection in a good many cases employing gages and instruments that are electrically or air operated perform as quickly as various sampling methods.

The use of the optical comparator should be used to its fullest advantage for fast and multiple inspection. Accurate inspection on the required amount of plating has always been a problem. To those who have need of this type of inspection the writer believes the Magna Gage will be the answer to their difficulties. Copper, zinc, hard chrome and cadmium plating can be checked to less than .0001 without loss to the pieces inspected in less than one minute.

### Gages and Tool Inspection

Gages and tool inspection would require quite a lengthy discussion as it is a field unto itself, but we might discuss a few of the highlights of importance. If the industrial plant is not large enough to warrant a gage laboratory the inspection department will be responsible for tool and gage inspection and control. A serial number should be assigned to each gage or micrometer where there is more than one of the same kind. A routine inspection should be made and records kept on each gage and micrometer.

It is obvious small plants and shops cannot have an elaborate setup. They will find it profitable, though, if they will employ a few of the above principles and adhere to them conscientiously.

# Employees Learn How To Build Good Will For Their Company

***After survey of customer opinion they organize to correct what's wrong and win public confidence***

By KIMBALL JACK
Advertising and Publicity Manager, Washington Water Power Company, Spokane, Washington

• A smiling voice makes friends.

**How to promote good will and additional business among people in the territory it serves without employing high powered "public relations" tactics is a problem that seems to have been solved by the Washington Water Power Co. Mention of the very phrase "public relations" is very unpopular around WWP offices, but each employee is a personal good-will ambassador. "Get electricity into homes and factories and public relations will take care of itself," is the Washington Water Power policy. By gaining employee interest in better methods of doing the day-to-day job, improved service is reflected in increased satisfaction among the consumers.**

**Employee questionnaires covering company policies brought out some surprising opinions and helped correct internal differences. Surveys among customers gave the public a chance to air complaints and offer suggestions for improved service. Results were the basis for WWP's Better Service Program.**

READERS who dote on intricate theories of public relations may see a paradox in the experience of the Washington Water Power Company with its Better Service Program.

Although the company has systematically developed a closer bond between its employees and at least a segment of its customers, it steadfastly refuses to recognize "public relations" as commonly understood. No special department is maintained with public relations responsibility; company literature avoids the phrase like a plague.

Consultants in public relations seldom drift through company halls, and for a certainty the expression in question is not dinned into employee ears. The entire Better Service Program idea rests on practical effort such as one might expect in a Western wheat and lumber country.

The five combined syllables — public relations — has in some quarters grown odious. "Get electricity into homes and to the factories," say our realists, "and public relations will take care of itself. One cannot purchase loyalty or good will at any price."

The Washington Water Power Co. neatly avoids odium regarding the subject by following a well-known American business practice of focusing attention on the means, and letting the end take care of itself. Said Kinsey M. Robinson, president of the company, "We looked for some way to gain more employee interest and to find better methods of doing the day-to-day job. That was really what we were after. It means a coordinated effort to review all operating practices and policies, and also an attempt to move employee attitude a few steps up the ladder of improvement. Eventually the result should reflect more satisfactory public attitude."

With this statement, Vice-president and General Manager J. E. E. Royer is in complete agreement, adding pointedly, "Our immediate problem is improved operations, so why talk about the vagaries of public relations or good will?"

What came next in our Better Service Program? The answer was to conduct another of our periodic public opinion surveys, but giving psychology wider latitude than is customary. The result was a questionnaire which dug deep into the grassroots of the situation. Questions covered a wide field and touched upon a few of the fundamental hungers of mankind, giving both interviewers and people interviewed a jolly time of it. The survey brought to light sufficient data for half a dozen programs, and indicated what percentage of customers in each area professed favorable or unfavorable attitude toward the company. Here, from numerous points of vantage, was provided the real basis for public relations effort.

Another preliminary step to the company's Better Service Program was a questionnaire to all employees, asking with surprising frankness what they thought about company policies, its destiny, and especially regarding their own job satisfactions. The unsigned questionnaire took the blinkers off and gazed into the eyes of truth.

It was a field day for the malcontent, and a good time for unpopular supervisors to remain indoors. Such items as credit-grabbing, aloofness to employee needs, failure to pass along company information, breaking confidences, respect for company property, fair play and some 30 related questions gave the company at least a toe-hold in correcting internal differences that had crept into the organization during long years of war. To put it bluntly, the home front was receiving attention with no holds barred.

Then, after much discussion with field representatives, the preparation of manuals, bulletins and a special meeting with supervisors, the program in all its realism was presented to employees.

Sitting in groups of 50 or 80, the 1,200 employees of the company learned what customers actually thought of them and their company. Survey results helped banish the idea that utility people are set apart, persecuted, and different. "We assumed we were generous," said one employee, "until we asked the receiver of our gifts. We thought we were courteous until our acts were compared with other business firms." Praises reached the company in some items, and a caution signal was seen in others.

Then squarely up to these employees went the question, "would they like to correct deficiencies the survey brought to light?" One year was suggested as a trial period, and at the end of that time a second survey of public opinion would show what progress had been made.

A dozen or so suggested committees were listed and employees were invited to choose such activities as appealed to them. Eighty-eight per cent of company personnel responded. Committee items drawing greatest enrollment were company information for the rank and file; mailing spe-

cial items of policy to consumers, and informal visits to new customers in the area.

Each committee elected its chairman, discussed the pros and cons regarding projects, and agreed that all effort would be made either in spare time, or out of working hours. Committee work fell into three general types: (1) Improvement to the individual job; (2) keeping employees informed about policies and procedures; and (3) broadening employee horizons to include more customer contacts. It should be mentioned that overall policies followed the usual channels leading to top management consideration.

### Employee Competition

Man learns soon enough that even a horse will run faster if it has competition, and what some employees would do for a hair-breadth escape from the tail end remained to be seen. Competition in the Better Service Program of the Washington Water Power Company resulted in the pitting of suburban areas against the major city, Spokane. The rewards, apart from usual current recognition, were to be a divisional party when the program ended, and expense-paid trips "back East" to a dozen outstanding employees.

Reports of activities, submitted the first five days of each month, were like getting money from home. At first blush, employees were "rarin' to go."

For example, mailing committees climbed way out on the limb and without hesitation asked to hand-address personal Christmas cards to the company's 100,000 customers, a tremendous task. Comely girls and male employees toted armfuls of envelopes home at night, scribbled names and addresses into the small hours, and back the next morning they came. The job was done without a hitch.

### Greeting New Arrivals

Newcomer committees volunteered to make a friendly call of welcome on all new customers in the area served — a neighborly thing to do regardless of employment affiliations — and a newcomer booklet was prepared for distribution. Courtesy committees in each division undertook to check points of contact, such as phone calls, meter reading, tree trimming, etc., and the first month under way they reported 504 employees contacted, and to these employees were given pamphlets on how to use the telephone and other literature promoting courtesy.

Speakers' committees attended evening classes to brush up on effective methods of persuasion, and the first month saw 23 employees presenting 50 talks before various community organizations. Window committees not only carried company display messages to outside points of observation, but numerous business, fraternal and civic groups asked for the privilege of friendly exploitation in company windows.

One employee personally installed a company exhibit for a women's auxiliary, one for a trade school, handicraft work for an orphanage, a floor display for a charity drive, and made contacts with 13 organizations in addition. Throughout the territory a total of 44 organizations were featured in company windows.

Such contacts, sent out like golden arrows from 15 committees, brought a friendly smile from many an organization chairman who regarded each item as something done especially for him.

To improve supervisory effectiveness, and help make a good company even better, steps were taken to conduct a supervisors' training course which featured industrial relations staff members from a local college. Situations in the field were used for class material, while dramatized narrative and open discussion proved effective.

But as no program can exist without more standardized meetings, three main channels for routing information were recognized. Executive officers met monthly to initiate routine department programs, and to discuss progress of these programs, and to hear top management give vital facts about the business picture generally.

Again, realizing the great distance that frequently exists between management and men, it was decided that employees from each service area, unaccompanied by supervisor or department head, and drawn monthly by lot, would come to the general office on designated days to sit down with the president or the vice-president to informally exchange opinions.

"This is the first time I ever talked to our busy president," said one lineman who traveled 190 miles to the meeting, and who had a service record of 11 years. "The meeting came on my wedding anniversary," said another outside worker, who added, "but I attended the meeting anyway — wouldn't miss it for anything."

The principal monthly session was a complete coverage of employees in meetings held on company time, or as an evening dinner meeting, where routine business of the Better Service Program was announced. At times, supported by skits, motion pictures, question games, charts, and dialogue, the general office staff presented a prepared program. At other times, divisional employees took over, meeting the usual concatenation of events with good-natured bantering.

The mood usually desired in these employee conferences centered in recognition of individual effort. It was not enough to say that two pieces of the good-will pie would grow in the place of one. Employees were interested in homespun reasons for giving such effort, and liked to know that their efforts were appreciated.

"We don't want prizes and silly rewards for what we do," said several employees arising to their feet at the first meeting.

*(Continued on page 44)*

### IDEAS THAT PAID OFF

**Employee-interest is increased by creation of committees to (a) improve individual jobs; (b) keeping employees informed about policies and procedures; (c) cultivate more customer-contacts.**

**Newcomers to the territory are greeted by a special group of WWP employees.**

**Personalized Christmas cards go to every customer on the WWP books.**

**Community organizations are given facilities of company windows for displays.**

**Speakers' committee furnished talks before local groups and service clubs.**

**• Employees' committee works long hours to address Christmas cards to WWP customers.**

## BUILDING GOOD WILL

*(Continued from page 43)*

"It's our company as well as yours. We are willing to do our part if everyone does the same."

But they did want to know that management was pulling in the same direction, and that extra hours and energy were wanted. A meeting dead as ditch water came to life when their inner desires were pointed to, and when it was shown that their efforts ever so minutely assuaged the same hungers in somebody else. Recognition remains one of the most deeply rooted needs of labor today.

General employee conferences required several topics for routine consideration, plus anything else the chairman found time to introduce. Program outlines included a report on the company's current situation, followed by discussion of some topics chosen as the subject of the month. The subject of the month, brought to light by the public survey, ranged from courtesy to new industries; from an explanation of rate, extension, and collection policies to electric house heating. Subject - of - the-month was announced prior to the meeting in house organ and through bulletins, and was supported by employee contacts, displays, newspaper and radio advertising, talks, and routine department tie-ins.

General employee monthly meetings also included the drawing of names to attend top - management - employee conferences, a question game to review previous assignments, and finally secret balloting to determine what employees had contributed most to the Better Service Program.

Any statement that a majority of employees gave enthusiastic support to the program is open to challenge. Usually a few workers carry the heavy load. And we hesitate to draw conclusions regarding the program at this point. Much work remains to be done.

For example, how can the manager of a small-town company office aid customers who stated in the survey that the community badly needs more education, crime prevention and new industries? How can he assist scores of individuals who confided to the interviewer that their deepest wish is assured income, or they hope to learn more, or it is their secret desire to do important things in life?

Before such problems are solved, employee enthusiasm may run low; the pendulum of customer reaction may offset any small good that is done; or a tidal wave of public power propaganda may dilute and outweigh all that is done.

Yet, in the meantime, employees are happier because they have a goal to work for, and they have less time to find fault. Many of them are developing unexpected traits of leadership. All who try are experiencing the fresh joy of making new friends. Such results will always be worth the effort, not to mention almost certain good that is bound to spring from public contacts as long as people are people.

WANTED
Waste is a Thief-Stop him!
A PENNY SAVED FROM WASTE IS JUST AS GOOD AS A PENNY RECEIVED FROM A CUSTOMER.
WANTED
Waste is a Thief-Stop him!
BRIGHTEN THE CORNER WHERE YOU ARE BUT PLEASE TURN OFF THE LIGHT WHEN YOU AREN'T THAR
Waste is a Thief-Stop him!
SMALL LEAKS CAN SINK BIG SHIPS!
ECONOMICAL DUCTION EANS MORE VERYBODY!

Dramatization of a campaign to reduce waste in the plant of the W. J. Voit Rubber Corp., Los Angeles, has paid off by decreasing material and time losses 20 per cent, and a production gain of 10 per cent during the first eight weeks. Several months ago, Voit employees were marched out of their shops by the ringing of the fire-drill signal, and while they were gone, $300 in pennies was scattered in every available corner and cranny of the plant. A near riot resulted when men began finding the coins (as reported in *Western Industry*, February, 1948).

Next day each employee got a bulletin with his time card, pointing out the thousands of dollars in lost pennies through careless handling, tools damaged through improper use, fabric and rubber ruined by carelessness. Posters throughout the plant depicted waste as a masked hoodlum, with the declaration, "Waste is a thief! Stop him!" Some of the posters are shown above, with Page Parker, vice-president, and Ed Best, production manager, inspecting new ones.

Employee interest was kept at a high pitch by daily meetings of all foremen and section leaders the first week, weekly meetings for the next six, contest awards totalling $2,500, Suggestion Box awards on a profit percentage basis, booklets, leaflets and house organ publicity.

Voit executives state that more than a hundred new methods and techniques have been introduced via the suggestion box system, 10 new machines have been devised and waste has been reduced sharply in all departments.

# Bay Area Industrial Show

When the Bay Area Industrial Exposition opens July 2 for eight days at the San Francisco Civic Auditorium, the world will have an opportunity to see the tremendous advances made in this region in the 10 years since the last show was held. Theme of the exposition will be the history of 100 years of industrial progress in California, and more than 250 manufacturers and distributors will display products made or assembled in the 12 Bay Area counties.

Post-war techniques in heavy industry, food processing, distribution and factory tooling will be among the important sectional displays. A peek into the future will be available in the first exhibit of atomic research, presented by the University of California's radiation laboratories.

Exhibits are limited to five classifications: processing or manufacturing; assembling or fabricating; maintenance of products or equipment; transportation, and banking and finance. Only Bay Area firms may take part in showing their wares. Food packers and canners, wineries and sugar refiners will play a major role, while three major automobile manufacturers who have assembly plants around the Bay will show their late models, amplified by tires, springs, accessories, gasoline and oil products produced in the 12 counties.

The Bay Area Industrial Exposition is sponsored by the San Francisco Chamber of Commerce in cooperation with Junior Chambers of Commerce throughout the region.

More than 2,500 industrial development projects were reported in the Bay area in 40 months ending in April, according to W. P. Fuller Brawner, president of the San Francisco Chamber of Commerce.

# Plant-Built Tools and Jigs For Cold-Poured Plastics

FACED with the problem of producing intricate precision parts of cold-poured plastic with the limited financial, personnel, and equipment resources of a newly established organization, the staff of the Electro-Dispatcher Corporation has developed several interesting methods to improve the quality and simplify the production of parts.

While the equipment and methods described are to some degree of a temporary nature, with expediency as the guiding principle, they do show what can be accomplished in spite of definitely limited resources.

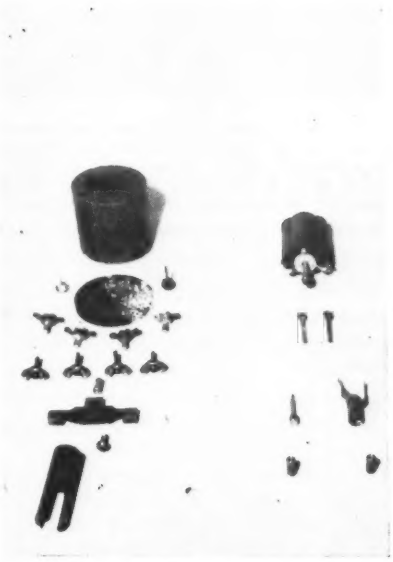
Among the simple, plant-built devices which have been constructed as a means of getting early production under way are a centrifuge for removing bubbles from the plastic fluid prior to casting, and an extractor for removing castings from the dies. A considerable amount of experimenting has been done on the selection of a suitable material for dies, and a small steel jig has been built to simplify the slitting of plastic tubing.

Electro-Dispatcher Corporation is a relatively recent addition to Seattle industry, having been formed about a year and a half ago by a group of aircraft engineers with ideas for the development of electrical control systems.

### Electrical Memory

The first product, embodying the basic principles, is just now entering the production stage. It is an electrical dispatch control board for use with large fleets of taxicabs. The first successful board was completed about a year ago, and one board, controlling a hundred cabs in the city of Seattle, has been in successful operation for about eight months.

Essentially the machine is an electrical memory, consisting of many complex electrical circuits into which certain information can be set for retention and recall at will. An interesting feature of the retentive capability is that it is not affected by disconnection of the power source. Power may be shut off for any length of time, and when the machine is re-energized the information in the machine at the time of shut-off can be recalled in every detail.



**• Die, die parts, plastic switch and accessories indicate intricacy of casting job. Right rear, complete switch; left, die; foreground, component parts in one assembly.**

While present production is specifically designed to assist in the control of taxi fleets in conjunction with the use of two-way radio communication, the future of the dispatch board gives definite promise of wide application in the industrial field.

Within the foreseeable future are applications to inventory control throughout processing operations, and beyond are automatic controls for mass production operations. Pulp and paper production, for instance, has been cited as one industry particularly susceptible to use of the device for process controls.

Of immediate interest in the production field are a number of developments which have been required as a means of getting the board into initial production. Since one board may have anywhere from 25 to 150 electrical switches operated by spring reflex push buttons and equipped with a small light beneath the switch button, a primary requirement was the development of a number of production techniques in plastics.

It was recognized at the outset that production techniques do exist by which much of the work could have been done. However, most of the methods can be used only by organizations with sizable resources in either equipment or finances, neither of which were readily available in this case.

### Bronze and Brass Dies

The alternate solution was to devise methods for which equipment could be built in the plant machine shop by plant personnel. As the production rate goes up it is expected that standard commercial methods will gradually replace the procedures developed for early production.

First problem was that of making the dies for casting of switch bodies. The switches are unusually intricate for a cold-poured plastic casting. The exterior shape is designed to permit close nesting of the switches in the panel mounting, a necessity where many switches are to be employed and space is to be conserved. Switch bodies are also finished to unusually high precision. Metal parts including four contacts, light socket, spring, plunger, and studs, as well as the core die, must be set in place inside the die prior to casting.

A good deal of experimenting was done with various metals and metal alloys before brass and bronze were adopted as standard die metals. It was found that any other metal from which dies might be made caused the plastic fluid either to bubble or to deteriorate. All dies were made in the shop with brass cylinders used for the body die and bronze for the core die.

The second problem was removal of bubbles from the fluid immediately prior to casting. Using a thermo-setting plastic of the synthetic resin type it was found that numerous small bubbles accumulated in the viscous fluid. If allowed to remain in the fluid during casting, the bubbles made production of a precision part impossible, and materially affected the finished appearance and operation.

Correspondence with the plastic manufacturer and other users of plastics failed to reveal any satisfactory method of removing the bubbles, but some experimenting in the plant machine shop led to the development of a simple centrifuge. It is interesting to note that several months after the centrifuge method had been placed in operation at Electro-Dispatcher Corporation, technical literature suggesting such a procedure was received from the plastic manufacturer.

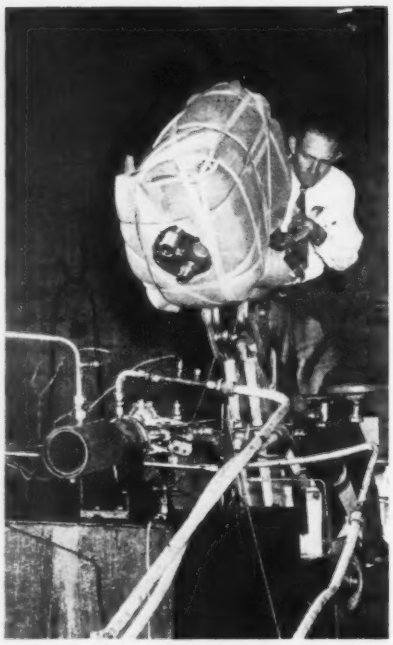
### Home-made Centrifuge

Two bottle holders are mounted on a steel spindle with a hinged connection so that the bottles will rise to a horizontal position as the spindle is rotated rapidly. The bottle holders are simple affairs with top and bottom bars connected with steel straps. A wooden cushion block fits into the mouth of the bottle and rests against the top bar. Another holds the bottom of the bottle, and a bolt with wing nut head is threaded through the bottom bar to provide pressure against the bottom cushion block.

The centrifuge with two half-pint bottles of fluid is placed in a small drill press and rotated at high speed for several minutes. This drives all entrained air toward the bottle mouths and out of the liquid. It has proven to be an effective method of eliminating the bubbles while working with relatively small quantities of the fluid plastic.

The third problem was removel of the molded switch body from the dies. The shrinkage experienced in the plastic upon setting has been less than 0.00025 inches per inch, and neither the main die nor the core die have been designed with taper. Both factors combine to make removal of the mold difficult, and some means had to be developed whereby a strong pressure could be applied to the relatively small area of the plastic casting. To perform this operation an extractor was built which multiplies the operator's hand pressure by a ratio of 10 to 1 and makes removal of the casting relatively easy.

A steel bar about a foot long forms the main frame of the extractor. Near one end a pair of heavy steel angles are bolted, and between the upstanding legs the operating handle is bolted. The short end of the lever is bolted to the extracting rod which acts in both directions. Near the other end of the steel bar a U-shaped steel plate is mounted with wooden nesting



**• Television plays vital part in rocket motor development. Here, Arthur Pickles, of Aerojet Engr. Corp., Azusa, Calif., lines up G-E television camera to allow view of jet in action from safe distance.**

blocks on both sides. The larger nesting block between the plate and the handle supports the main die while the casting is pushed out through the opening in the plate.

To remove the core die in the succeeding operation, the casting is placed in the nesting block on the far end of the bar. A machine screw is threaded into the end of the core die and a slot in the head of the extracting rod permits it to be slipped over the screw head. The core die is then removed by pulling from the casting. The extractor is set up in a bench vise when in use, and its small size permits storage in a drawer or hanging on a wall hook when not in use.

The fourth problem in plastics involved the slitting of tubing for the switch push button. The body of the push button is fabricated from a light plastic tubing which is cut into short sections and then slit about half the length of the section to form two parallel prongs. When the button is pushed, the prongs, moving down through the switch body, motivate the switch.

Holding the short section of tube during the slitting operation proved to be rather difficult and led to the making of a jig to serve that purpose. The tube is held in a closely fitting hole in the center of a heavy steel bar which forms the front member of the square jig. It is mounted on two side members which serve as runners and guides. The rear member is simply a brace to hold the frame rigid.

The jig is operated on a table saw with two 1/16-in. plastic saws mounted dual and separated by a 7/16-in. spacer. Setting the side members of the jig in properly spaced guides on the saw table, and holding a length of tubing firmly in the hole in the jig an operator can slit tubing very rapidly.

In addition to the developments in handling of plastics several interesting innovations have been made in electrical wiring procedures. Use of a two-sided wiring bench permits two men to work on the same unit without mutual interference, and development of a wiring rack has resulted in a saving of about two miles of wire in each control board.

Ordinary wiring benches are accessible from one side only with the other side occupied by a tier of compartments for holding parts and tools. In order to speed up work on the step switch panels a piece of plywood was mounted horizontally on a sawhorse and cradles placed to each end to hold the step switch panel rigidly in position.

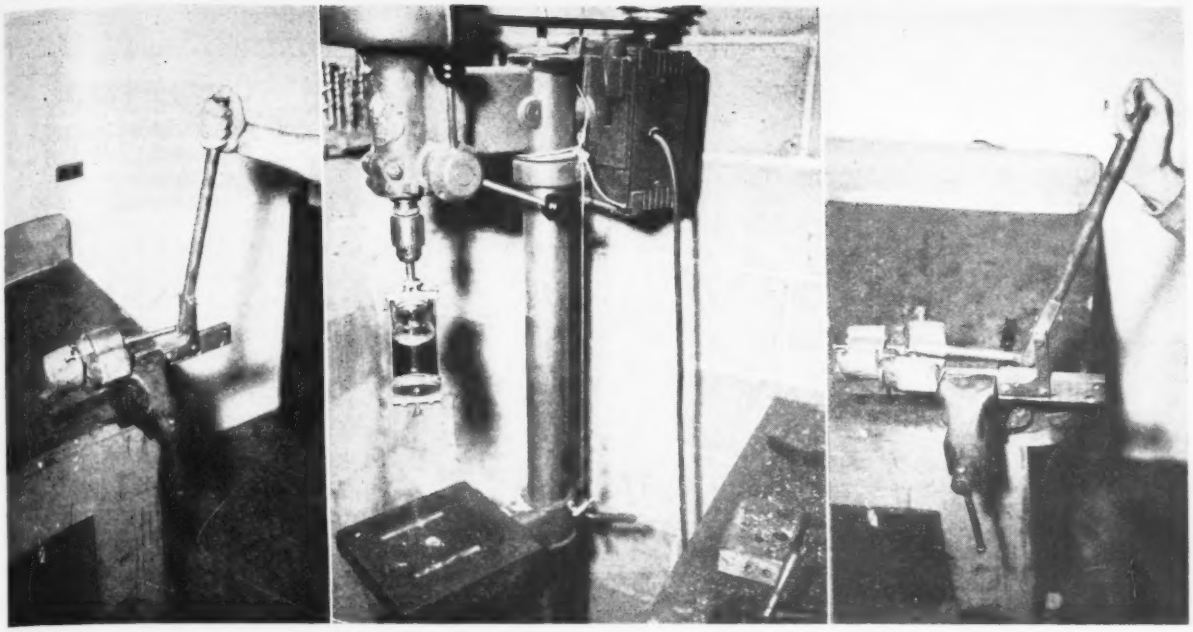
The bench was wired and equipped with electrical outlets for soldering irons. The work is accessible from all four sides, and the bench, being light and easy to handle, can be set up for work anywhere in the shop.

From the wiring bench the step switch panels (each with 20 step switches) are transferred to a wiring rack. Normal control boards require the installation of four to six panels with up to 110 step switches, all of which must be wired in parallel. If the wiring between panels is delayed until the panels are installed in their permanent frame, the problem of access to the connections becomes exceedingly difficult. Early practice was to leave long pigtails which required an excessive quantity of wire.

To make the panels accessible and at the same time cut down the amount of wire required, a wooden rack was made which permitted placing of each step switch panel in its final relative position in the assembly, but upside down. The rack is laid horizontally on a pair of sawhorses, and all connections can be made readily. The panels are pre-spaced by the jig, but still are accessible to more than one man.

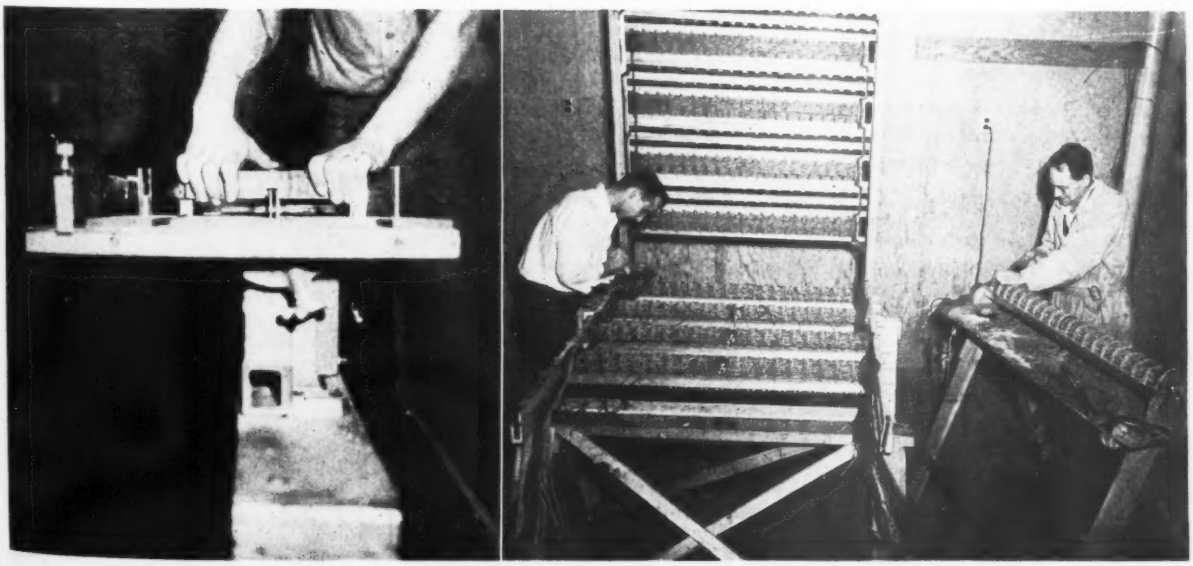
Since up to 126 solder connections may be required for each step switch and up to 110 step switches may be included in one assembly, the advantages of this rack can be readily appreciated. Once all wire connections have been made the rack is turned over onto the permanent aluminum frame and the step switch panels are in their final positions.

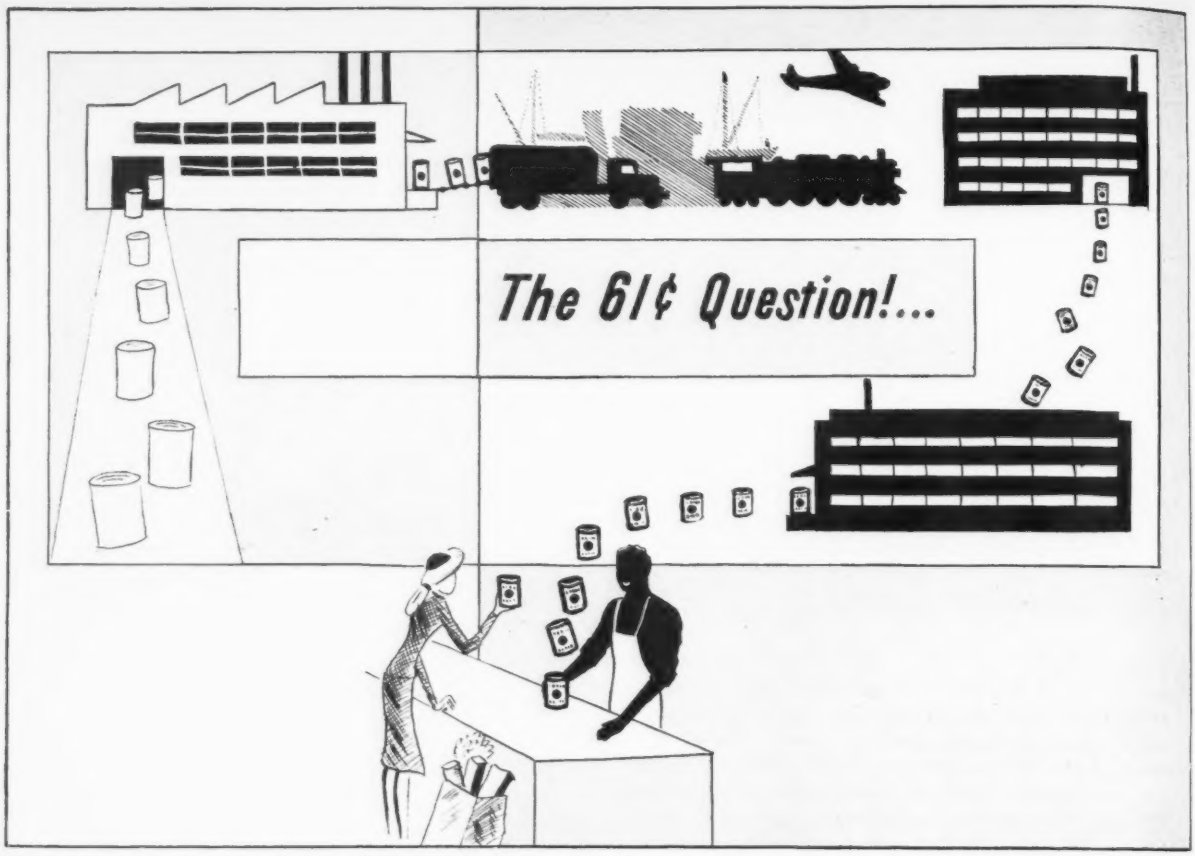
Electro-Dispatcher Corporation is actively headed by William A. Sourwine, who serves as vice-president and is a co-inventor of the control board. Edward M. Pulsipher is general manager, and Frank Donnelly is mechanical designer. Bill Dawson, shop foreman, is responsible to a large degree for development of many of the methods described above.



• These simple yet effective tools were designed and made in Electro - Dispatcher shop to serve until more conventional devices could be bought. (Left) Shop designed casting-extractor multiplies hand power 10 times. Here, switch body is pushed from main die. (Center) Home-made centrifuge to force air from plastic liquid powered by small drill-press. (Right) Another extractor pulls core-die.

• Easy access from both sides allows two men to work on complex wiring job without interfering with each other. Rack effected big saving in wire. (Left, below) Shop-built jig on table saw is used to slit plastic tubing for push-buttons. (Right) Step switch panel rack facilitates parallel wiring prior to assembly in aluminum frame. The man at right is working on two-sided wiring bench.






**• How wisely the manufacturer plans to spend the 61c of each consumer dollar that goes into distribution cost spells the difference between a marketing advantage or a quick trip to the poorhouse, whether product is canned beans, wearing apparel or steam shovels.**

# Distribution Cost Control is Marketing Advantage Key

OVER the long pull, successful selection and development of markets resolves itself down to *efficient* marketing. And efficient marketing can be pretty well determined by highly controlling the cost of distribution.

Current national figures indicate that on the average, production cost of an article represents 39 cents of the consumer's dollar. The other 61 cents pays the cost of distribution, which is marketing in all its ramifications. What is done with the 61 cents is a pretty accurate yardstick to *efficient* marketing.

If marketing costs can be cut to 58 or 56 per cent of the consumer's dollar, then a marketing advantage can be gained. This can result in savings to our customer, higher wages for employees, more dividends for shareholders, or increased working capital and expanded plant that may be used to further cut marketing costs. While we are dealing with averages here, they can be reconciled to an individual business and the production-distribution ratio realistically applied both to our own and the competitors' products.

## Market Selection

It may seem too elementary, but your market first must be defined *geographically* and *economically*. If you are a play shoe manufacturer, certainly you want to *know* that southern California is a logical volume market; yet price might determine the extent of this market. Hence the need for a broad understanding of the economics of the region. You should be able to answer the questions: Is the market actually lower, middle, or upper income? Is your product tailored for the market?

Nowadays there is little reason to launch a product without a basic knowledge of what the market can absorb. Despite the great shift of population to the West, most markets throughout the country are still basically unchanged since the 1940 population census and census of business. Supplement these figures with more current data from local trade and business associations, Department of Commerce figures, and other recognized sources, and statistically, you get a broad perspective of the market and its buying power.

## Classifications

Marketing of most lines, unless mail-order is the single outlet, has become so complex, and normal channels of distribution so interlaced with each other, that intense study is required to gain a clear picture of the distribtuion plan you may wish to follow. Every segment of the market

**(Second of a series of three articles prepared by West-Marquis, Inc., Pacific Coast marketing and advertising counsel. The succeeding article will explore use of advertising to fit marketing plans.)**

must be analyzed to gain full knowledge of the entire plan:

(a) *Wholesalers - jobbers;* (b) *chains;* (c) *institutions;* (d) *retailers;* (e) *consumers.*

Every marketing plan brings into play one or more of these elements in the distribution blue-print. A thorough knowledge of the operation of each is imperative if goods are to move from producer to consumer with precision and economy.

### Cost of Distribution

"Full many a product is born to blush unseen and waste its value on the warehouse floor," to paraphrase a fine quotation. Distribution is loaded with pitfalls that have tumbled many a fine product into distress merchandise. Again, there are authentic channels of information that can afford anyone a scientific analysis of distribution costs. These factors must be researched to the final fraction of a cent:

1. *Transportation: water; rail; truck; air.*

In certain specialized lines, such as wearing apparel and scientific instruments, air freight and air express are bringing down overall transportation costs due to lowered inventory costs and elimination of warehousing.

2. *Warehousing, including inventory control.*
3. *Selling: direct supervision field; sales promotion; merchandising; advertising.*

After the foregoing analyses have been made, it's a good time to re-assess your own product in terms of competitive:

*Price; Quality; Packaging; Service (both your own and the dealer or distributor's).*

### Pre-Testing

Satisfied that your product will measure up, the next logical step is to pre-test it in an isolated market where all factors can be carefully watched. This calls for close personal effort on the part of sales managers and salesmen, and involves direct work with every segment of the distribution system. Wholesalers, jobbers, and retailers, intelligently approached, will cooperate fully in testing a market. The various advertising media will lend merchandising support to help obtain a clear-cut result on the test.

On such a test, the faults of the product and the special or unusual channels of distribution which should be followed, may be quickly learned. From results obtained, a more thorough marketing plan may be devised that will produce greater sales results. A California marketer of bleaches, who is an outstanding exponent of pre-testing, has scored remarkable success because he conducts a pilot-study in every market he enters.

(Ed. Note: *The advertising and sales promotion phases of marketing will be covered in a subsequent article.*)

1. *Misdirection of marketing effort.* Too many concerns marketing a variety of lines do not know from which products profits are being made, and which products are losing money. A meat packer carefully analyzed his marketing practices and found that 24 per cent of salesmen's calls, 26 per cent of the phone calls, and 16 per cent of the deliveries represented only 2 per cent of the total volume. It's easy to figure out what happened in that business.

2. *Maximize total profits.* Too much emphasis is placed on the total profit picture, not enough on the profit each product is producing.

3. *Insistence on complete market coverage.* There are plenty of market facts available to tell us where the centers of population are and the buying power of a community. Yet, many national marketers, in the face of such evidence, insist on getting representation in the *whole* market.

4. *Failure to keep abreast of changing potentials* and to shift emphasis as needed. Some rather brutal lessons are being learned these days in the private flying industry, because manufacturers and service organizations were too late in sensing the bust in the post-war private flying boom.

5. *Multiplicity of brands* is a pretty obvious reason for inefficient marketing. There are, or were before the war, 32 different grades of men's white shirts. If you are a shirt manufacturer, certainly you must pre-determine if you want representation in *all* of these grades, or if you are after only the $3.95 market.

Besides being just plain good business, proper selection and development of markets—*efficient marketing*—has these significant aspects:

1. *Economic.* We have proved our tremendous capacity to produce. Now it is our job to perfect the system of distribution that will speed absorption of our production. There has never been real overproduction; there has been, and there still is, faulty distribution.

2. *Social.* In 1941, 66 per cent of the people gainfully employed in this country were working in the service and distribution industries. Today the percentage is even higher. There is a practical need, and a moral obligation, to keep these people gainfully employed. Better marketing practice will help accomplish this.

3. *Political.* Hovering in the background are new, as always, national bureaucratic interests which are anxious to step in and attempt to do the distribution job. A constantly improving marketing pattern will permanently shelf such hopes.

Today, as nowhere else on the American scene, marketing in all of its phases offers new horizons to business — presents new outlets for ingenuity and resourcefulness. For marketing is the new frontier for American enterprise.

## TIPS ON MARKETING ANALYSIS

**A smart manufacturer who analyses his market before starting production of a new item, will generally seek the answers to such questions as these:**

1. **Total Market Potential**
2. **Markets by Territories**
3. **Existing Competition**
4. **Price Position of New Product**
5. **Established Distribution Channels**
6. **Possible New Trade Outlets**
7. **Attitude of Trade and Consumers to New Products**
8. **Established Brand Preferences**
9. **Features or Advantages of New Product**
10. **Possible Disadvantages of New Product**
11. **Advertising and Promotion Necessary to Gain Acceptance**
12. **Possible New Product Uses**
13. **Extent of Service Needed**
14. **Packaging and Shipping**

## TIPS ON SMART MARKETING

**After analyzing the potential market, the manufacturer should determine exact cost of:**

- **(a) Transportation by rail, water, truck and/or air.**
- **(b) Warehousing, including inventory control.**
- **(c) Selling, including field supervision, promotion, merchandising, advertising.**

**He will try to avoid:**

- **(a) Misdirection of marketing effort.**
- **(b) Emphasis on total profit instead of individual product profit.**
- **(c) Insistence on complete market coverage.**
- **(d) Failure to keep abreast of changing conditions.**
- **(e) Multiplicity of brands.**

# Use of Blower System For Copra Handling Saves Time, Manpower

***Vegetable Oil Firm Employs Air to Move Loose Material From Ship To Warehouse in Minimum Time***

**Wherever materials are to be handled, there some business organization is either making or losing money, perhaps an amount large enough to mean the difference between profit or loss on the entire operations of the company. For that reason, "Western Industry" provides a continuous editorial service to its readers on materials handling developments and problems. The accompanying article is another of "Western Industry's" regular features on the subject of materials handling.**

COPRA, the intermediate product linking the cocoanut with perfumed toilet soaps, margarine and countless consumer items, is probably one of the nastiest, most evil-smelling materials known to industry. The cocoanuts are split and sun-dried on some palm-fringed island, removed from the shells and transported to this country in the holds of ships.

Removal of the copra from the vessel and transportaing it to storage was long a problem until the system devised by the Sutorbilt Corporation, Los Angeles, was put into use. The largest conveyor of its kind now in operation was recently designed and engineered by Sutorbilt for Spencer Kellogg & Sons, Inc. In effect it is a giant vacuum cleaner that sucks up the copra from a ship's hold and moves it a distance of several feet at the rate of 180 tons an hour.

The conveyor system built for Kellogg's is a combination of six portable conveyors tied in, as needed, with a stationary unit. Operation is based on the use of Sutorbilt blowers acting as prime movers. From one to six of the portable conveyors may be used with the system, each driven by a standard diesel, gasoline or electric motor requiring only one man to operate. Using diesel power, a unit performs at an average cost of only 60 cents an hour at top speed.

At the Kellogg plant, near Long Beach, the portable units are installed on Utility Trailers, 8 ft. wide, 22 ft. long, and 13½ ft. high, with a load rating of 51,000 pounds. Each trailer has dual wheels, pneumatic tires and air or vacuum brakes. Towed alongside the ship at the dock, a flexible hose with a nozzle is projected into the hold, where longshoremen feed the copra into it with pick and shovel.

From the ship the copra is sucked into a product recovery unit that is a part of the portable conveyor. Here it drops down into a rotary seal valve operated by a 7½ hp. motor, and is metered into the discharge side of the blow-line. At this point conveyance becomes a matter of blowing rather than one of sucking the material along. Through a series of pipes and elbows the copra is blown up 80 feet to the top of the scale house. This is accomplished for the whole system by a single 18x30 blower.

At the top of the scale house the copra enters one of three separators, where it is whirled around at high speed and dropped into a garner bin which absorbs the surge of conveying rate. By gravity the copra next drops to the weighing floor. The operator of the scale records the load, then releases it into the common garner bins on the second floor.

From these bins the copra is dropped into a rotary seal valve on the first floor and metered into the discharge side of one of two 22x60 blowers. Note that, since leaving the hold of the ship, the copra has moved a considerable distance and been weighed into batches without human effort other than to operate the scales and to direct the flow of material.

After entering the blowers of the stationary system, the copra goes through 14-in. pipe and is routed by diversion valves to whichever warehouse is its desti-

**• Dockside view of portable conveyor units taking copra from ship for transfer to scale-house via pipes. Only manual handling is when copra is shovelled into suction nozzle.**

nation. The pipes carry it to the top of the warehouse and into hoppers, where it is discharged onto a belt conveyor running along the top of the building. This is manually operated so that material may be dropped at will, giving increased storage capacity because the copra can be piled higher and aisle space reduced or eliminated.

The use of portable conveyors is not a new one in handling copra, and 95 per cent of such equipment now in use is Sutorbilt. It is applicable to other materials handling; the product recovery unit, rotary seal valves and other features such as the size of pipe, vary according to the specific job to be done by the air conveyor. Rated tonnage may be anywhere from one to 100 tons an hour, the average being about 45 tons an hour. In the case of copra this is governed largely by the speed with which longshoremen feed the material into the nozzle in the ship's hold.

**• Conveyor pipes from portable units on dock pass through dock house on way to top of scale house. Note belt conveyor system and portable conveyor used for bagged meal.**

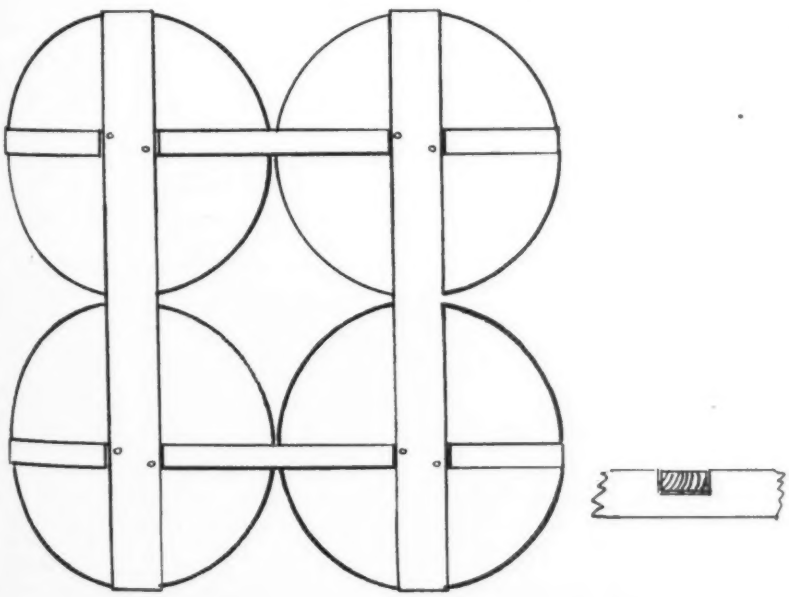
# One-Way Drum Pallet

Every once in a while there is a product that doesn't adapt itself to ordinary materials handling methods because of its size or shape. To keep down shipping costs a special type of equipment must be designed, even though the shipper has packaged his product in a standard manner.

Ease in handling of oil drums was one problem like this that was solved by an economical one-way, disposable pallet of wood. Using the new type pallet and a lift truck, four drums at a time may be handled.

It consists of two stringers, 1⅝x3¾x48-in., notched on each edge 12 in. from the ends, and two top pieces 1⅝x3¾x48-in. Top pieces are nailed in the notches with two nails, giving a flat loading surface with room for forks of a lift truck underneath.

A similar pallet known as a "Take-it-or-leave-it" pallet was designed for moving loaded bagged or sacked items. Stringers on both sides of the pallet frame allow the loaded pallet to be moved to a freight car door as a unit and the bagged load lifted off the pallet and into the car by lift truck without disturbing the pallet. Dave Fairbrother, of American Box Co.'s industrial shook division, San Francisco, devised the disposable pallets.



## Uncovered Floor Racks Dangerous

Failure to cover floor racks when shipping fibre boxes in refrigerator cars is an important factor contributing to the high rate of damage occurring to packaged freight moving by rail, a set of documentary photographs, released by the Shipping Container Institute, reveals. They show actual conditions found in some of the 700 freight cars inspected in a nationwide survey.

Either because of the perishable nature of the commodity, or because of the freight car shortage, which forces a shipper to use whatever type car is available, it is frequently necessary for corrugated fibreboard boxes to be loaded in refrigerator cars equipped with floor racks. When this occurs, the shipper should see to it that the racks are covered with sheets of corrugated board or flattened boxes.

## A Few Ways to Save Time and Money

Here are a few examples of the kind of savings that can be realized by good materials handling methods, as reported by William O. Hicks, past president, Materials Handling Ass'n of Southern California:

A Western cannery that replaced muscle methods with fork trucks and pallets saved over $5,000 a year on a single operation—moving cases of canned goods from production line to warehouse. Still another example is that of the battery manufacturer who combined fork trucks, palletized loads and roller skates (floor type) conveyors in its highway trailers to cut its loading and unloading time of a 12-ton trailer from 360 man-minutes per handling operation to a 46 man-minute operation — a saving of 87 per cent.

# Good Accounting Uncovers Costly Operating Mistakes

By ALEX LANS
Public Accountant, San Francisco

UNDER the present laws an accurate accounting system is essential if you want to stay out of trouble, but the question sometime arises to the manager and operator of the business, "Can I save any money by giving a few pertinent thoughts to my accounting work?"

In many cases, the answer is "Yes." However, to accomplish the best results there must be coordination between the accountant and manager. A voluminous financial statement and cost report, very well prepared from an accounting standpoint, has little value if the manager has not the accounting experience, inclination or time to go over a lot of details.

All the details should be available but on the final report the important figures should stand out clearly and precisely so they are easily understood by the person who operates the business. In some cases considerable savings can be made by simply changing procedures, in others a detailed study of facts is necessary. Here are a few examples of each:

1. A firm dealing in flour products received orders, about half of which had to be shipped partially, the balance of the order being shipped at a later date. The procedure was for the sales department to make out an order to the warehouse and then, if and when the warehouse made the shipment, they in turn would make out a bill of lading and a slip of paper which would be sent to the billing department, from which the invoice was made.

This procedure had not been satisfactory and had been the cause of a lot of friction between the departments. For this reason the management decided to have a study made of their billing system and see what improvements could be made.

### Billing Overlooked

In analyzing their system it was discovered that some shipments were leaving the plant without being billed, due to the fact that the slips of paper were lost or were forgotten to be made out. The auditors prepared invoices to cover these shipments and the money the company received in payment of these invoices was in excess of the total cost of installing the new system.

A new system was installed by which the sales department prepared the invoices immediately upon receipt of the order, showing the quantity ordered, but leaving the quantity shipped blank. Two copies of this invoice were given to the warehouse, and the original and one copy went to the billing department.

Upon making a shipment the warehouse would insert the quantity shipped on both copies, sending one copy to the billing department and the other copy with the shipment. The billing department would type the quantity shipped and the total amount of the invoice on the copies they had in their files, sending the original to the customer.

If only a part of the order was shipped a new invoice was prepared which would follow the same procedure as if a new order had been received. Checking a few months after this new procedure was installed, it was found that it not only prevented shipments from leaving the warehouse without billing but it saved time, removed friction between departments and helped the stock department, not only in keeping records but also in ordering materials for resale.

2. The manager of a distributing company selling a staple product was in a rather peculiar situation. The salesman would show him that they made a good profit on their individual sales, but the financial statement which he had to show the owners of the company revealed but a meager profit.

### Profit Lost in Warehouse

It was customary for the salesmen to order most of the products in carload lots, place it in a public warehouse and then sell it to the wholesalers and retailers in smaller quantities. The profit margin was not large and the money to finance the purchases was borrowed from the bank.

The salesmen in figuring the profit on the sales would take the difference between the purchase price and the selling price, disregarding the expenses of warehousing and financing. Some of the material sold had been in the warehouse for over a year.

A very simple system was installed. A card was prepared for each carload that came in showing the cost per unit, to it was added the cost of warehousing and financing per unit, and on the first day of each month, as long as any of this material remained in the warehouse, the cost of one month's warehousing and financing was added. Following this procedure it was easy to figure the actual profit made on each sale.

These cards became valuable guides in buying materials. Money was saved by being able to reduce investment on slow moving materials. Incidental to the installation of this system, the auditors were able to save the company additional money in warehousing. The auditors brought to the attention of the management that the company owned a large basement which could be used as a warehouse. Their suggestion that this space be cleaned out and utilized as a warehouse was followed up immediately.

3. A large packing plant purchased its material in two different grades. After it reached the plant it was sorted into 10 different grades, the lowest grade being considered a by-product. All the attention was directed to the best grades of merchandise.

### By-products Carried the Load

In order to allocate the different cost of all the different grades packed, the management ordered a complete study made of their operations. This audit included actual time checks in the factory and lasted many weeks. The result of this audit brought out, among other things, that the by-products to which no one had given any attention were paying by far the highest percentage of profit. In view of the results of this audit the management decided to check more closely on the higher grades packed thereby improving these grades and by doing this, the production of the by-product was increased. The result was an increased profit.

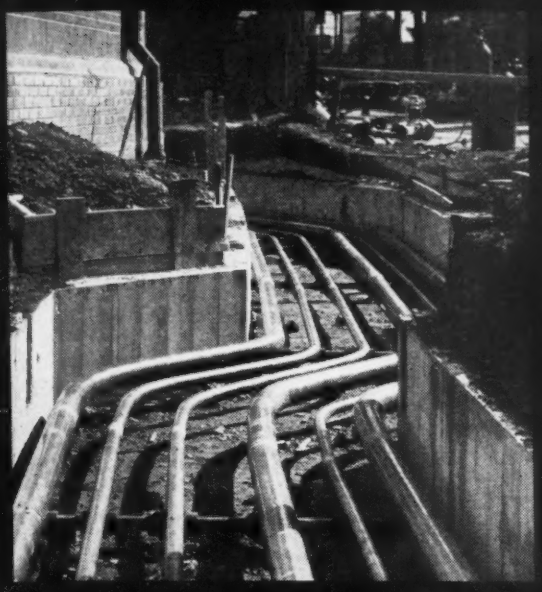
4. A liquid gas distributor in a small California town was having bookkeeping trouble. He made an average of 50 deliveries a day, mostly on account, necessitating considerable clerical work which interfered with his regular work. Some customers paid in cash, some paid by check, some paid ahead of time, some were far behind and some had disappeared. By the end of the year it became apparent that he needed some good accounting assistance and needed it badly.

An audit revealed that it was advisable to install an entirely new accounting system. It was decided that instead of maintaining an accounts receivable ledger it would be simpler to use a filing system for the accounts receivable.

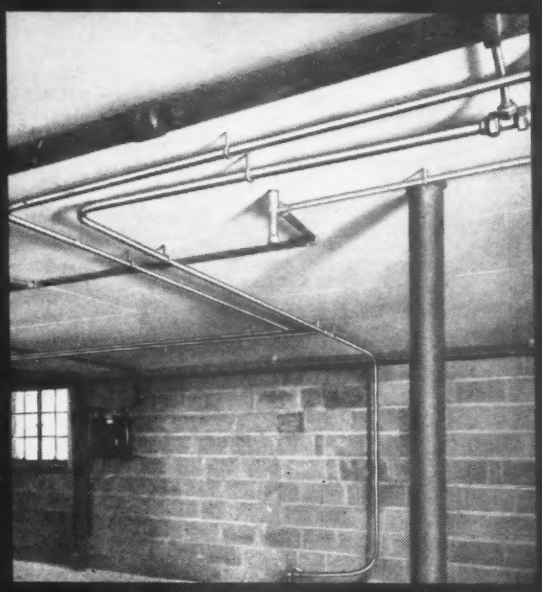
Here, however, was a peculiar situation. It was relatively easy to install a new system and say that at the end of each month 350 or 400 statements should be mailed to the customers, but the question was who was going to do it. The firm could not afford to hire a qualified accountant who could take charge of all the work including all the tax accounts, etc. The manager was not in favor of taking a part time bookkeeper as he had had some bad experience in that respect.

After much consideration it was decided that all the invoices should be mailed to the auditor's office and all the accounting should be done in their office as they were

*(Continued on page 62)*



In this pipe trench between buildings of a large hospital group, Revere Copper Water Tube, bent for offsets, saves many fittings.



Hot and cold water lines of Revere Copper Water Tube joined with compression fittings. Note the smooth bends in this hard temper tube.

# TROUBLE always costs more than

# REVERE COPPER WATER TUBE

THE permanently smooth interior of Revere Copper Water Tube permits full and unrestricted flow of water, oil or gas for a lifetime of continuous service. Due to the long life of copper, this tube guards against leaks, rusty tap water, inadequate flow and faulty circulation. Yet, completely installed, it costs little or no more in the first place . . . and much less in the long run. Remember—*trouble always costs more than Revere Copper Water Tube!*

Revere Copper Water Tube is ideal for heating, water supply, air conditioning and other services — underground or indoors—in all kinds and sizes of buildings. Joints are easily made with either soldered or compression fittings. The soft temper Type K and Type L tubes in all sizes, and even the hard temper Type K tube in sizes up to 1″ inclusive, are easy to bend, thus eliminating many fittings and reducing frictional resistance in the piping system.

Revere Copper Water Tube is stamped at regular intervals with the Revere name and the type. Look for these identification marks—they insure full wall thickness and the close gauge tolerances so essential for tight sweated joints.

You can specify or install, in addition to Revere Copper Water Tube, such other long-lived Revere materials as Red-Brass Pipe; Sheet Copper and Sheet Herculoy for tanks, ducts, pans and trays; Dryseal Copper Refrigeration Tube (dehydrated and sealed); Copper oil burner, heat control and capillary tubes.

The Revere Technical Advisory Service, Architectural, is always ready to serve you. Call your Revere distributor.

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*Mills: Baltimore, Md.; Chicago, Ill.; Detroit, Mich.; New Bedford, Mass.; Rome, N. Y.—Sales Offices in Principal Cities, Distributors Everywhere.*

*Pacific Coast District Sales Offices in San Francisco, Seattle, Los Angeles*

# WESTERNERS AT WORK...

## Arizona

**Henry R. Wardwell,** formerly with U. S. Vanadium Corp., goes to Magma Copper Co., Superior, as geologist.

## California

### Aircraft

**Lt. Gen. Harold L. George,** famed head of Air Transport Command during the war, has been appointed vice-president and general manager of Hughes Aircraft Co., Culver City.

**LaMotte T. Cohu** elected president and general manager of Consolidated-Vultee Aircraft Corp., and member of the board replacing **V. C. Schorlemmer,** resigned. Cohu was formerly president of TWA.

### Manufacturing

**Reese B. Lloyd** appointed mgr. of Rheem Manufacturing Company at South Gate. **R. J. Seltzer** placed in charge of all product engineering for the company and responsible for design and specifications for all products.

**Waite Stephenson** and **Carl Kalbfleisch** promoted to vice-presidents of Atlas Imperial Diesel Engine Co., San Francisco.

**H. B. Patterson** named plant mgr. of Pacific Can Company's new southern California plant at 2615 Bonnie Beach Place, Los Angeles. **L. K. Peak** named southern California sales representative.

**J. J. Buckley** elected pres. of Pacific Tube Co., Los Angeles; he was formerly v.p. and gen. mgr. **E. H. Lloyd** upped from plant supt. to v.p. **G. C. McEvoy,** formerly ass't treas., elected treas.

Fred G. Rumball

**Fred G. Rumball** appointed head of West Coast purchasing operations for Ford Motor Company, succeeding **Louis C. Disser,** retired. Mr. Disser, a veteran of 35 years with Ford, will retire on September 19.

**Harry C. Gunetti,** on loan to the Westinghouse Electric Co. for the past year, has returned to Joshua Hendy Iron Works as assistant to President **J. A. McCone.** When Westinghouse took over Hendy's Sunnyvale plant, Gunetti remained on loan as general manager until operations were well under way. His post has been assumed by **J. A. McGilvray,** Pacific Coast mgr. for Westinghouse, who is moving from his Emeryville office to Sunnyvale.

**Marshall A. Shapiro** elected pres. of Peerless Iron Works, Alameda. **J. C. Stevens** named v.p. and sales mgr., and **Charles H. Day,** sec.-treas. and gen. mgr. of all operations.

**Ab Martin,** formerly at Schenectady headquarters, named ass't mgr. of Oakland works of General Electric Company's apparatus dept.

**George Goodwin,** formerly director of research for Wilson Foundry & Machine Company, Pontiac, Mich., appointed v.p. in charge of engineering, Pacific Automotive Corp., San Francisco.

**E. K. Meredith** elected a director and promoted to executive v.p. of Weber Showcase & Equipment Company, Los Angeles, succeeding **E. V. Williams,** resigned.

**Rodney B. Campbell** joins Lynn Company, Burbank, as chief hydraulic engineer.

**Julius A. Kayser** elected resident v.p. and Pacific Coast mgr., Laclede-Christy Clay Products Co., St. Louis. He will have offices in San Francisco. **Wm. E. Daugherty** and **Russell K. Wasmann** appointed district mgrs. at Los Angeles and San Francisco, respectively. **Walter Eames** will be plant supt. at the new Laclede-Christy plant at Warm Springs, Calif.

**Ray Reeves,** former business consultant at San Francisco for Department of Commerce, subsequently with research dept., J. Walter Thompson Co., New York, becomes research director for San Francisco Bay Area Council.

### Steel

C. T. Spivey

**C. T. Spivey** appointed director of industrial relations, Columbia Steel Company, San Francisco, succeeding **Joseph L. Turner,** who has been sent to an executive position with United States Steel Corporation of Delaware at Pittsburgh, Pa.

**Richard Wolcott** joins George E. Swett & Co., Inc., San Francisco, as manager of purchases and stores. He was formerly with Bethlehem Steel Co. and United Engineering Co.

**John Menz** named assistant general manager in charge of sales for Kaiser Aluminum. . . . **Marvin Lee** transferred from production manager at Trentwood rolling mills to Permanente Metals Oakland office as sheet products manager for sales dept.

**Paul L. Dragon** promoted to assistant director of industrial relations for Columbia Steel Co., San Francisco. **J. D. Macarthur** succeeds Dragon as industrial relations supervisor at the Pittsburg, Calif., plant.

Dale D. Douglass

**Dale D. Douglass** appointed plant mgr. of Chevrolet-Oakland Division. He has been an employee of Chevrolet Motor Division for past 21 years, serving most recently at Detroit Gear and Axle plant. He succeeds **Frank J. Fitzpatrick,** who has served as plant manager of Oakland since 1937. Mr. Fitzpatrick was formerly plant mgr. of Janesville, Wis., assembly operation — not Mr. Douglass as stated in May issue.

**G. C. Jones** named assistant manager of Bean-Cutler Division, Food Machinery Corporation, San Jose, replacing **Howard L. Shannon,** who has been made manager of the company's Florida operations.

### Transportation

**Nat Levy** has retired as v.p. and sec. of Moore Dry Dock Company, Oakland. He is succeeded as sec. by **Melvin G. Bartlett.**

**Capt. Philip Lemler,** USN (retired), has been elected v.p. and gen. mgr. for Todd Pacific Shipyard Corp.'s Bay Area operations. **J. D. Reilly, Jr.,** is new ass't gen. mgr., and **J. J. Redington,** management consultant. Captain Lemler was head of San Francisco Naval Shipyard from 1946 until his retirement from the Navy on July 1. He graduated from the Naval Academy in 1919, and MIT in 1923.

### Lumber

**Charles H. Schimpff,** v.p. of Capital Research Co., Los Angeles, elected v.p. and chairman of finance committee, Harbor Plywood Corp.

**Kenneth Smith,** pres. of California Redwood Ass'n, named ass't to **A. S. Murphy,** pres. of Pacific Lumber Co., San Francisco.

### Mining

**Harvey S. Mudd,** Los Angeles, is new president and managing director of Cyprus Mines Corp., with **Henry T. Mudd** as gen. mgr. of Cyprus and two subsidiaries, Cia. Minera Acme and Coronado Copper & Zinc Co.

### Paper

**James D. Zellerbach,** pres. of Crown-Zellerbach Corporation in San Francisco, appointed chief of a special mission to Italy by **Paul G. Hoffman,** head of Economic Cooperation Administration.

### Utilities

**A. R. Bailey** named v.p. of Coast Counties Gas & Electric Company, San Francisco.

### Public Relations

**Louis B. Lundborg,** general manager of San Francisco Chamber of Commerce since 1943, appointed vice president for University Development at Stanford University. He will coordinate all phases of public relations on the Stanford campus, taking over his new job as soon as a successor is named by the Chamber.

**G. L. Fox** named vice-president and general manager, San Francisco Chamber of Commerce, succeeding **Louis B. Lundborg.** He has been manager of the Chamber's Industrial Department since 1943.

### Oil

**Fred Powell** appointed gen. mgr. of Standard Oil Company's El Segundo refinery, succeeding **W. W. Davison,** recently named a v.p.

**Clarence F. Hansen** elected pres. of recently-organized Calmara Oil Company. Calmara is a wholly-owned subsidiary of the Richmond Exploration Company, which in turn is a Standard of California subsidiary. The new firm has been set up for the purpose of transporting and selling crude oil from Venezuela.

**H. H. Madden** becomes president of Republic Petroleum Co., succeeding **C. C. Spicer,** who resigned after 23 years because of ill health. **Raymond A. Earle,** of Westates Petroleum Corp., joins Republic as v.p. and director.

### Food Products

**J. Herbert Carson** named treas. of Leslie Salt Company, San Francisco. He was formerly comptroller for Pittsburgh Steel Company.

**Howard Hall** named Western division mgr. for Welch Grape Juice Co. at the new $2,000,000 plant of Oakland Canning Co., San Leandro, recently bought by Welch.

## Colorado

**Clyde Waers,** formerly in NLRB sub-regional office at El Paso, has been named officer in charge of the Board's Denver office.

## Montana

**A. B. Cobb** and **R. P. Jackson,** Great Falls, chairman and secretary, respectively, of state oil conservation board, named by Gov. Beauford H. Jester of Texas as members of standing committees of interstate oil compact commission.

**Henry Svoboda** named general field supt. of A. B. Cobb & Company, Cut Bank. Mr. Svoboda comes from Salt Lake City where he was engineer for Wasatch Company. Wasatch bought Cobb interests in Cut Bank recently, but organ-

ization will continue under the Cobb name. **Ray Klugh** transferred to Great Falls to set up headquarters for Cobb interests in Wyoming and Colorado. . . . **O. R. Damon**, field supt. for Inland Empire refineries, whose field activities have been taken over by A. B. Cobb & Company, will be ass't mgr. of land and exploration for Wasatch, Salt Lake City.

## Oregon

**Victor Olson** of Bellingham Plywood Corporation elected v.p. and director of Springfield Plywood Corporation, Springfield. The Springfield and Bellingham plants are subsidiaries of the Georgia Hardwood & Plywood Corp.

**Harold H. Cake**, Portland, v.p. and purchasing agent of J. E. Haseltine Company, elected v.p. of National Ass'n of Purchasing Agents, succeeding **Clair Pingree** of Salt Lake City.

**Clyde E. Todd**, Days Creek, elected temporary chairman of a committee which is organizing a unit of operators to be named Western Forest Industries Ass'n.

**Norman A. Stoll** appointed gen. counsel for Bonneville Power Administration. Two Portland attorneys, **Vernon J. Veron** and **John L. Bishop**, were also added to the staff.

New personnel director of Pacific Power & Light Co., Portland, is **C. H. Campbell**, former ass't personnel director for Portland Gas Co.

## Washington

Melvin Williamson

**Melvin Williamson** selected to supervise operation of Kaiser Aluminum Rod and Bar Mill to be installed at Trentwood Rolling Mill near Spokane.

**Ronald Horne** appointed Pacific Northwest marine supt., Luckenbach Steamship Co., Seattle, succeeding **A. J. Morrill**, recently named acting district mgr. at Seattle. . . . **Robert E. Piper** upped from mgr. of Portland office to position of Pacific Northwest mgr. to be in charge of both the Seattle and Portland offices.

**W. L. Zeigler** appointed gen. mgr. of Pend Oreille Mines and Metal Company, Spokane.

**Everett R. Hannah** transfers from Georgia to Spokane to assume duties as operations mgr. for Washington Brick and Lime Company.

**E. J. Watson** of Mount Vernon, gen. mgr. of PictSweet Foods, Inc., elected to board of Canned Pea Ass'n.

**Victor Olson**, Bellingham, elected v.p. of Washington Veneer Company; **W. E. Evenson**, Seattle, named sec.; **W. H. Schultz**, Olympia, elected treas. and ass't sec.; **J. F. Howard**, Olympia, controller and ass't treas.

**William Brown** replaces **C. L. Wheeler** as mgr. of Western Light Metals, Spokane. **Richard Lang**, former assistant to Mr. Wheeler, is acting as plant supt.

**Robert S. Neblett** named ass't gen. mgr. of nucleonics department of General Electric Company's Hanford Works, Richland. **Lewis F. Huck** appointed counsel for the department, and **Forrest E. Baker**, comptroller. . . . **Dr. Winston Patnode** appointed ass't to gen. mgr. **George G. Lail**, formerly ass't mgr., ass't to gen. mgr. of nucleonics dept. . . . **J. R. Rue**, formerly ass't mgr., appointed as ass't to gen. mgr. with responsibility for budget control and cost reduction programs. . . . **Frank R. Creedon** appointed mgr. of design and construction divisions at the plutonium manufacturing plant, Richland. . . . **E. L. Richmond**, formerly service dept. supt. at Hanford Works, assigned new responsibilities that are grouped under title of community mgr. at Richland.

**W. C. Ventsam**, Northwestern division mgr., will supervise operations at Tea Garden Products Co., Grandview.

**Kenneth L. Cook**, Billings, Mont., appointed agricultural development agent, headquarters in Seattle for Northern Pac. Ry., succeeding **J. L. Maguire**, resigned.

**Howard Morgan**, head of pulp division, Weyerhaeuser Timber Company, transfers from Longview to Tacoma.

**Dr. Warren S. Peterson** selected by Permanente Metals Corp. to supervise physical metallurgy laboratory of the new Kaiser aluminum research department at the Trentwood rolling mill, near Spokane.

**Kenneth M. Kennell**, v.p. and gen. mgr., Shaffer Terminals, Tacoma, appointed to Transportation and Communications Committee of the United States Chamber of Commerce.

**J. P. Kiley**, Seattle, promoted to v.p. of operating department, Chicago, Milwaukee, St. Paul & Pacific railroad, after two years as v.p. in charge of the Western region. His headquarters will be in Chicago.

## Associations Elect

**Stuart Moir** appointed forestry counsel for Western Forestry and Conservation Ass'n; he is succeeded by **Ernest L. Kolbe** as chief forester for Western Pine Ass'n. Mr. Moir succeeds **E. T. F. Wohlenberg**, who recently resigned to become gen. mgr. of Masonite Corporation's Ukiah operation. Mr. Kolbe has been Southern Oregon-California district forest engineer for Western Pine Ass'n in Klamath Falls, Ore., and Sacramento, Calif.

**L. A. Cranson**, v.p. of Honolulu Oil Corporation, elected pres. of Oil Producers Agency of California, succeeding **W. C. Whaley. H. E. Woodworth** elected first v.p.; **R. A. Grand**, second v.p.; **C. C. Spicer**, third v.p., and **C. A. Johnson**, fourth v.p. **Rush M. Blodget** re-elected executive v.p.

**Jesse R. Schoenfeld**, Schwabacher Hardware Co., Seattle, elected pres. of Washington chapter of American Steel Warehouse Ass'n; **Rubin W. Raport**, Barde Steel Co., v.p.; **Grant H. Ryer**, Crucible Steel Co., sec.-treas., and **Carl C. Mueller**, A. M. Castle Co., chapter director.

The Pacific Northwest Trade Ass'n elects **Paul B. McKee** a regional v.p. for Oregon (Mr. McKee is pres. of Pacific Power & Light Co.); **H. M. Ahlquist** and **L. Pitus**, v.p.'s for Washington. **John P. Kiley**, Seattle, v.p. of Milwaukee railroad, elected pres., succeeding **Charles B. Lindeman**, publisher of Seattle Post-Intelligencer. Other officers include **J. V. Johnson**, Victoria, v.p.; **A. Waterman**, Seattle, treas.; **D. C. Knapp**, Seattle, executive sec., and **George I. Warren**, Victoria, ass't sec.

**Wayne Rising**, v.p. and gen. mgr. of Ducommun Metals & Supply Company, re-elected pres. of southern California chapter of American Steel Warehouse Ass'n.

**Kenneth A. Knudson**, Everett Pulp & Paper Co., installed as president, Washington Purchasing Agents Ass'n. Other new officers are **Frank C. Bergman**, Pacific Coast Co., 1st v.p.; **Luther C. McIver**, Puget Sound Power & Light Co., 2nd v.p.; **C. R. Ragsdale**, Seattle Tent & Awning Co., secretary; **Russell Wetherell**, Olympic Foundry Co., treasurer, and **S. E. Ringheim**, Crown-Zellerbach Corp., national director.

**W. L. Haley**, director of production and production control for Fisher Flouring Mills, Seattle, elected president American Association of Cereal Chemists. Northern California chapter of same organization chooses **Wm. Zimke**, chief chemist Fairfax Bread Co. as chairman and **Cecil Pinney**, chief chemist Langendorf United Bakeries, vice-chairman.

**Charles Bannan**, vice-president Pacific Gear and Tool Works, San Francisco, elected president California Metal Trades Association. New vice-pres. is **Cloyd Gray**, president W. R. Ames Company, San Francisco. **Roy Tatam**, general manager Western Piping and Engineering Company, becomes treasurer.

**Claus R. Groth**, asst. treas., Pacific Power & Light Co., elected president Portland chapter, National Ass'n of Cost Accountants. Vice-presidents are **H. Tyrell Lowry** and **Archie L. Holmes**; **Emett S. Clifford**, treas., and **Arthur D. Meehan**, secretary.

Oregon Purchasing Agents Ass'n elects **R. P. (Dick) Stockwell** of General Construction Co. as pres. **Jarrett Jones** of A. W. Davis Supply Co. is vice-pres., with **E. O. Haymond** of Shell Oil and **Merritt Simmons** of Portland Traction Co., as treas. and sec., respectively.

**A. B. Folger**, gen. mgr., Lion Coal Co., Ogden, Utah, elected a director of the National Coal Ass'n for the next two years.

**A. V. Taylor, Jr.**, pres., Taylor-Knapp Co., Phillipsburg, Mont., re-elected president of the Mining Ass'n of Montana for 1948. **G. T. Vandel**, Jardine Mining Co., and **R. B. Shelledy**, Montana Phosphate Products Co., are 1st and 2nd vice-presidents.

**R. C. Thumann**, manager for five years of United Employers, Inc., Oakland, has been promoted to the post of exec. vice-president. He will continue his managerial duties, according to President **Ford M. Tussing**.

Earl Bunting

**Earl Bunting**, formerly of Portland, Oregon, has been appointed managing director of the National Association of Manufacturers, succeeding the late **Walter Weisenburger**.

**Everett G. Werner** of Kultor King Mfg. Co. elected chairman of Portland chapter American Society of Tool Engineers, succeeding **W. E. Brennan** of Iron Fireman Mfg. Co. Other new officers are **A. H. Beckley**, Moore Dry Kiln Co., 1st vice-chm.; **R. D. McGilvra**, Product Engineering Co., 2nd vice-chm.; **A. D. Jacobson**, Western Machinery Co., secretary; **J. L. Phelps**, Texas Co., treasurer.

**A. D. Carleton**, traffic dept. mgr., Standard Oil Co. of California; **Raymond W. Miller**, Linden, Calif.; and **George M. Hopfenbeck**, v.p., Colorado Milling & Elevator Co., Denver, are among newly elected directors of the Transportation Association of America.

**J. A. Carlson**, San Francisco representative of the Kraftile Co., Niles, Calif., appointed acting president, Northern Calif. Chapter of Producers' Council, replacing **Ernest P. Larson**, resigned.

**E. M. Shapiro**, California Packing Corporation, San Francisco, elected a director of National Ass'n of Credit Men to represent this area.

**Edgar A. Wilcox**, of E. A. Wilcox Co., San Francisco, elected president of Manufacturers' Agents National Ass'n. **Lee R. Wallace**, Los Angeles, is one of the new regional v.-presidents.

**Fritz Loffler**, Butte, Mont., has been elected president of the Rocky Mtn. chapter, Master Brewers of America, succeeding **Charles E. Volk**, of Great Falls. Denver will be site of their 1949 convention.

# Financial Transfusion to Help Aircraft Industry

***Navy's mammoth Michelson Laboratory dedicated; auto registration 14 per cent below 1941 level***

LOS ANGELES—Just how heavily the West's aviation industries depend upon outside aid was revealed twice recently, when first-aid crews had to be dispatched on the double to save two well-known leaders of the industry from financial heart failure.

Only ten days before a million-dollar payment on outstanding notes came due, TWA applied to RFC for a $10,000,000 loan to relieve what the company referred to as its "critical" condition. Things rarely happen that fast in the RFC's marble halls, but a four-alarm warning jangling down Washington's sensitive grapevine promptly brought help from an entirely different quarter.

The bureaucratic ambulance that raced to the scene was marked "Civil Aeronautics Board" and the oxygen tent it applied was a new air mail rate for TWA's international routes. When made retroactive as of last January, the move netted cash for that company to the tune of $1,100,000, or approximately the amount needed to make the payment.

About the same time, Consolidated Vultee announced it had been losing about $1,000,000 a month for the past five months; whereupon followed a new bit of surgical aftermath to the recent major operations undergone by Convair and its affiliated companies. Harry Woodhead resigned as president, to become vice-chairman of the board, and was replaced by Floyd B. Odlum, well-known eastern financier. Simultaneously Odlum announced a $20,000,000 credit arrangement with a group of banks, coupled with plans for a $7,000,000 stock offering to strengthen Convair's financial position.

Consolidated - Vultee attributed this year's heavy loss to its two-engined transport program, estimating that it expects to lose $46,000,000 on its new 40-passenger transport plane. TWA, with a group of newly purchased ships to pay for, found the financial burden too much to carry at present high operating costs, even at present high traffic levels—yet the airlines are the aircraft industry's major source of civilian business.

If the airlines soon will be nearly out of the market for new equipment, who is to pay the cost of developing new improved models? Admittedly, drafting the nation's air freight and passenger carriers in time of war is a makeshift means of mobilization, yet to develop a new plane such as the four-engined DC-6 and the twin-engined Convair, costs about $30,000,000. Douglas says it must sell 300 DC-6's to break even, and with 150 sold so far, the company is still $20,000,000 in the red.

### Brewster Bill

A bill introduced by Senator Brewster to provide governmental help for developing commercial transport and cargo planes adaptable for military use, recognizes the industry's predicament. It may not mean new appropriations, since the 70-group Air Force bill left plenty of leeway for allocating funds among various types of ship.

First announcements of the measure left the local industry anxiously speculating as to what would be done regarding the all-important air cargo-carrying equipment without which no modern army can maintain its supply lines. A smoothly-functioning campaign now appears to be working to bring this subject to attention in the right quarters, with appropriate supporting publicity to back up its sponsors.

The arithmetic of making a $1,000,000 transport plane pay off its cost within five years has a logic that is irresistible. The air transport industry cannot support the aircraft industry in the style to which the latter is accustomed—and if military logistics become the yardstick for national policy, substantial booking for civilian heavy plane production is inevitable.

It is suspected that a good deal of curtailment in feeder airline development will take place when certificates under which formed in seven acres of laboratories in the airlines now operate expire. Communities now served by these branches will be orphaned. The pinch will be particularly painful where airmail coverage is curtailed. It has been suggested that "star route" airmail service from these communities to major cities might fill the gap. Such a plan would have the considerable advantage of stimulating the light plane industry. If Congress wishes to do a double job in helping the aircraft industry get on its feet, it might well consider this proposal when postal finances next come up for consideration.

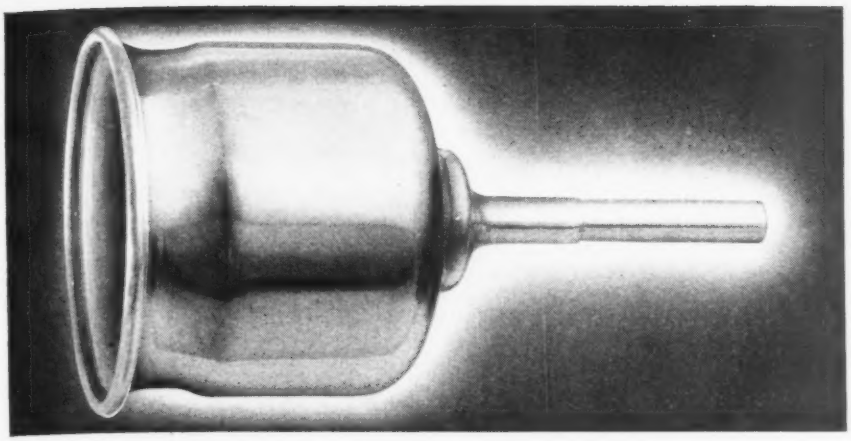
A determined effort to trim overhead expenses is being made by Western Air Lines, which is installing its own repair and maintenance shop at its Los Angeles headquarters hangars to do work formerly farmed out. Thus it expects to reduce costs on engine overhaul and other upkeep work so sharply as to save the entire shop investment of $100,000 within a year.

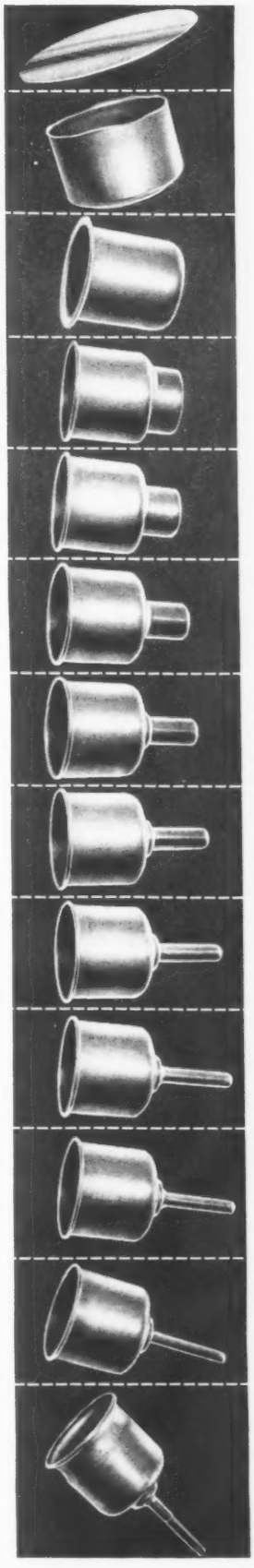
### Michelson Laboratory

Any manufacturer who attended the dedication of the Navy's fabulous new Michelson laboratory at Inyokern, key Naval ordnance test station in the Mohave desert 160 miles north of Los Angeles, could not fail to be fascinated by the remarkable production equipment used in this fantastic center of "weaponeering." Its heat-treating shop contains some of the largest furnaces west of the Mississippi, its foundry has the latest centrifugal casting machines, its air-conditioned heavy machine shop is an orderly maze of 183 machines ranging from a jeweler's lathe to giant planers, shapers, boring mills, and hydraulic drawing presses, plus an array of special tools capable of performing almost any known metal-working process.

All this is an intermediate stage in the far-reaching experimentation being performed in seven acres of laboratories in which 3,500 scientists, technicians, and

*(Continued on page 58)*





# How deep can you draw Aluminum?

This upper bowl of a commercial vacuum coffee maker started as a 14½-inch circle of Kaiser Aluminum. In 12 progressive stages it was drawn to a 6⅝-inch bowl with a tubular stem ¾-inch in diameter and 6⅜ inches long. A total reduction from circle to stem of approximately 95%—*without a single anneal!*

### Lower fabricating costs!

Because of Kaiser Aluminum's excellent quality and workability, extra steps are saved, and handling and fabricating costs are reduced. Scrap loss is cut. Tooling setup costs are low. And with aluminum, plating is unnecessary because a bright, lasting finish can be obtained by buffing.

The result is a low-cost product that can't rust, chip or break. And that can't be matched for sales appeal!

### What does this mean to you?

It means that with Kaiser Aluminum you have a quality metal capable of meeting the toughest manufacturing requirements. A *versatile* metal that combines strength, durability, lightness, workability, and that can never rust.

It means, too, that you can have the services of thoroughly experienced engineers, expert in selecting the right alloy for the most complex job, and capable of assisting in your most difficult fabricating problems. May we tell you more?

**For another dependable source . . . choose**

# Kaiser Aluminum

**product of Permanente Metals Corp.**

SOLD BY PERMANENTE PRODUCTS COMPANY, KAISER BUILDING, OAKLAND 12, CALIFORNIA . . . WITH OFFICES IN:

Atlanta • Chicago • Cincinnati • Cleveland • Dallas • Detroit • Houston • Indianapolis
Kansas City • Los Angeles • Milwaukee • Minneapolis • New York • Oakland • Philadelphia
Portland, Ore. • Salt Lake City • Seattle • Spokane • St. Louis • Wichita

(Continued from page 56)

other employees are creating new types of rockets, torpedoes, guided missiles, and other ordnance of tomorrow. A new design is engineered, built in the shops as a working model, fired or flown out in the vastness of this desert area, then is carried through pilot production to the stage where private industry could speedily translate the final blueprints and specifications into mass production.

Navy officials say that they are earnestly trying to shorten the time lag which heretofore has required one to 1½ years from drawing board to large-scale production. Technical consultants will carry Navy know-how to a network of "production centers" throughout the country. Such nuclei will form the fabric of industrial mobilization, should another war occur.

### Mexican Timber

Existence of a welcome addition to the West Coast's timber resources was divulged upon the return of Alexander Richard Kingaard, mining engineer, from examination work in Lower California. Deep in the Sierra and San Pedro Martir, a range of mountains some 50 miles long and 15 miles wide, is what the engineer believes may be the last stand of undeveloped timber on the Pacific Coast. A rough cruise of the area, which lies between elevations of 6,500 and 10,500 feet, indicated an estimated 5,000,000,000 standing board feet, consisting of white cedar and Ponderosa, sugar, Jefferies and lodgepole pine. Development of this timber could mean substantial improvement in the supply in this area, for much lumber has been moving southward during the past several years to support a lusty building boom in cities along the Mexican border.

### Ford's New Plant

Significantly, Ford Motor Company has chosen a West Coast site for the first of three post-war "luxury line" assembly plants it is building at various U. S. points. The Lincoln-Mercury plant just opened at Los Angeles was also the first to hit the market with 1949-model cars. Never before have Lincolns been assembled outside Detroit, but General Manager Thomas W. Skinner summed up the Ford Company's point of view when he remarked that California tops all other states with 2,800,000 registered motor vericles, nearly 48 per cent of which are in the medium or high-price brackets—a figure considerably above the national average.

At peak output the new plant, which is entirely air-conditioned, will turn out 200 cars each eight-hour working day from its 5½ miles of overhead conveyor lines. By an adroit arrangement for feeding component parts, the two makes of cars are assembled on the same production line, every third car being a Lincoln.

Growth of this Western automobile center can be gauged by the fact that in 1941, Los Angeles' four assembly plants turned out 154,000 cars, which were enough to rank the city's production as second only to Detroit. When all plants now under construction here are in operation, they will turn out somewhat better than 650,000 automobiles annually — if materials are available. And the outlook is much brighter as result of Columbia Steel's plans to have a 300,000-ton cold-roll mill in operation here early in 1949.

It is a little hard for natives to believe, when viewing the acres of shiny vehicles glistening on local used-car lots, that southern California still has fewer automobiles per capita than before the war. Security-First National Bank computes, however, that 1947's registrations of 339 cars per thousand people were 14 per cent below the 1941 average. In fact, says the bank, to have equaled the prewar ratio would have required roughly 334,000 more automobiles than were registered here. Perhaps Detroit's motor moguls have fortified their enthusiasm with a sound admixture of economics in joining the westward procession.

Throughout the West, Pacific Pumping Company is recognized for the fact that they provide pumps for every pumping requirement. Regardless of the specific type of pump you need – turbine, boiler feed, condensation, self-priming or centrifugal, you will find that Pacific can meet your specifications. Contractor's rental service for jobs of short or extended duration are also a part of Pacific's plan to provide pumps for every service. Over forty years experience in pump manufacturing have given us the knowledge to engineer pumps that will handle capacity loads at a minimum cost. Western factories located in Oakland and Portland assure quick delivery of your orders and prompt service in assisting you on any of your pumping problems.

PACIFIC

PACIFIC PUMPING COMPANY Est 1907

*Manufacturers & Distributors of Pumps for Every Service*

SEATTLE · PORTLAND · OAKLAND · LOS ANGELES

### Sporting Goods

Voit Rubber Company has acquired the Huntington Rubber Company's facilities here, including the heavy equipment which will be used in adding rubber floor tile and garden hose to the Voit line of products. Popularity of rubber-covered athletic balls, built on the tire principle with fabric casing and a rubber bladder, has enabled Voit to create a national market and become the largest producer of athletic equipment on the West Coast.

. Now operating its own mill in North Carolina, the firm is able to control its supply of cotton thread and to weave its own fabrics, an important step toward integration. Since demand for floor tile and garden hose reaches a peak in summer, these products will level out the dips in the seasonal schedule for the athletic balls, which since the war's end has kept Voit running three shifts during fall and winter months.

### Apparel Fanfare

Western manufacturers who find markets dull for their wares might well take notice of what California's apparel makers have been doing in similar circumstances —i.e., displaying their wares throughout the nation, to the accompaniment of a first-rate, attention-compelling job of drum beating.

Operating under the twin handicap of high labor costs plus two-way freight on raw materials and finished products, the industry would never have been able to compete in eastern markets without offering something different from the ordinary product. That "something different" consists, in this case, of the California label, with its connotation of Hollywood glamour.

The California Apparel Creators, for instance, have tied in with the State's Gold Rush centennial celebration, conjuring up names like "Nugget Gold," "Sierra Green," and "Sutter Brown" for the colors used in their new styles. Hokum or no, the move has incalculable value in getting free national publicity for their ware. To this has been added an elaborate plan book for displays featuring California-made goods. Along with the list of prefabricated ideas are the raw materials—including display tables, window dressings, and scenic photos made available at small cost to the eastern showowner, who thus can stage an impressive promotion with little effort on his part. Sales resistance crumbles before such a mighty onslaught, and such market strategy finds virtually no competition.

Typical of the results is a "California-on-the-Mississippi" promotion staged by Stix, Baer & Fuller, of St. Louis, where the entire block-long front of the store was reconstructed to appear like a Spanish rock wall, with hundreds of imported geraniums and palms planted behind it in three feet of soil. A Spanish pink canopy running the full length of the block added a further West Coast touch, finished off with elaborate replicas of Hollywood scenes. Such trappings created a powerful fanfare for the Western-made clothing which was featured during the week-long promotion.

Another group known as the "Guild of California Dons" has gone on a five-week train tour of the nation, garbed in serapes and sombreros in which they will present portable fashion shows for the eastern trade. Again capitalizing on the regional flavor of the West, the group will display men's fashions which feature some 18 "vineyard" tints created by California's Wine Institute, ranging from the various purplish shades of the grape to Puncheon Brown, Golden Sherry, Vermouth, Viny Green, Vin Rose, and Burgundy.

Easterners may shudder effetely at this typical Californian trumpeting and at its quaint characters wearing their 18 varieties of purple slacks, but there is no doubt that they will also stop, look, and listen. Best answer is that through such enterprise, the West's apparel industry—which at the time of the depression of last decade, numbered only a few hundred manufacturers with an output of small national import — this year includes some 1,000 firms whose annual output will total more than $400,000,000.

**Versatile New Grinder Saves Time — Improves Grinding Efficiency**

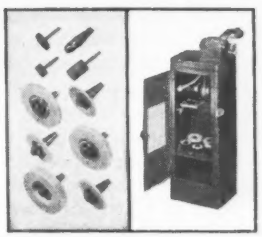
**A new grinder, the Corlett-Turner G-3,** permits changing of grinding wheels in a matter of seconds and assures a true running wheel at all times. Each wheel is individually mounted on a ground, tapered arbor.

**Easy wheel changing** is accomplished by a slight wrist motion on the end bells of the grinder head. A twist to the left releases the wheel arbor; the reverse action instantly secures it in place. It's all done in a matter of seconds. No costly time is lost in repeated wheel dressing.

**In addition to its primary function,** the G-3 grinder has innumerable uses for burring, buffing, polishing, and production applications requiring a high speed spindle. Powered by a 1/3 horsepower motor, a three-step pulley arrangement provides speeds of 5600, 8000, and 12,000 r.p.m.

**Efficiency in precision work** is also increased when tension is relieved by the act of chewing. And chewing Wrigley's Spearmint is a pleasant, easy way to help relieve workers' nervous tension. For these reasons Wrigley's Spearmint Chewing Gum is being made available more and more by plant owners everywhere.

*Complete details may be obtained from*
*Corlett-Turner Co., 1001 S. Kostner Avenue*
*Chicago 24, Illinois*



Grinding Wheels — Corlett-Turner Grinder

AC-65

# Steel Company Needs 800 Houses for New Employees

***Expansion of industrial plants hampered by a lack of homes for workers; building costs up***

SAN FRANCISCO — Housing is not generally thought of as a corporate problem as well as an individual difficulty, but Columbia Steel Company are facing a serious situation that vitally affects their ability to operate their new rolling mill now being completed at Pittsburg. Some 800 houses are needed for additional employees, and the question is, how to get them built?

Some of the big insurance companies who have gone in for big metropolitan developments are not interested in small town housing for rental purposes, and as yet no other means has come to light for answering the need. Houses to sell cost so much that it is difficult to interest steel workers in purchasing, and for Columbia itself to engage in either selling or renting houses involves many complexities with the unions.

Construction costs have gone up so much in the last two years that apparently a solution for a similar problem encountered by Fibreboard Products in the neighboring town of Antioch nearly three years ago would not apply in Columbia's case. A glass factory was to be erected by Fibreboard for its subsidiary, Glass Containers, Inc., and housing for 300 workers was needed.

Fibreboard launched an advertising campaign in the Antioch newspaper pointing out the company's interest in the community and how its needs for housing parelleled those of the community itself. This advertising brought a prompt response from contractors who bought up land for development as subdivisions and built more than 400 houses.

A committee to study urban land use problems has been set up by the San Francisco Bay Area Council, with Professor Paul Wendt of the school of business at the University of California as chairman. The members are starting out to assemble statistics on costs of materials and the selling prices of houses. In the course of six months they hope to make available some information that will begin to throw light on the troublous housing problem, not only for the benefit of the individual but also for corporations who cannot operate new plants unless an adequate housing supply is developed.

### Canning Carryover

Northern California's big canning industry, which supplies the world with canned cling peaches, apricots and asparagus and divides the pear output with the Pacific Northwest, is again facing the uncertainties that beset it in the decade before the war. Carryovers have begun to pile up, and costs have crept up so close to prices that there is no longer a good margin of safety. Despite all this, packers are bidding keenly for apricots and peaches, even though a huge peach crop is in the making. Big unsold stocks of tomatoes and tomato juice are tending to cut down tomato contracts with growers, however.

During the war period great progress in mechanization of canning operations was made, lessening to some extent the need for many thousands of women to assist in the processing operations. The first big step in that direction was in the development of peach pitters and pear peepers, and this year several new makes of peach pitter are on the market in addition to those previously used. The industry also has recognized that an apricot pitting machine would be inevitable, and last year experimental runs were made with a pitter manufactured in San Jose. During the winter the machines were remodeled, and they will be in use this season on a considerably larger scale. The apricot pitter will take the place of 100 women whose average wage runs $1.30 to $1.40 an hour.

The dried fruit industry has fallen into its prewar slough of depending on government purchases to remove surpluses from the market, but this time is experimenting with the export market which at one time was a vital factor. Before Hitler made his Jugoslavian trade deal in 1935, Germany took about one-third of the California prune crop, but 1935 sliced that market off completely.

In the last few months 86,692 long tons of raisins have been shipped from Port of Stockton and 75,138 tons of prunes from terminals in Oakland, Richmond and San Francisco, Port of Oakland getting the bulk of the business. All this dried fruit went to the American zone of occupation in Germany, except for 17,950 tons of prunes sent to Japan and 2,500 tons each of raisins and prunes to Austria. Legislation by Congress permitted the Department of Agriculture to turn over to civilian relief abroad certain commodities acquired in price-support operations.

Another step toward building up foreign trade is the recent effort by the terminals and port authorities of the San Francisco Bay area to develop an agency to conduct a joint selling campaign. They have been awakened by the conspicuous success of New Orleans and other Gulf and Atlantic ports in developing cargo.

### Foreign Trade Zone

Importers may now bring merchandise into the Port of San Francisco and store it or process it duty free in the new Free Trade Zone established recently at Pier 45. It is the third such zone in the United States, the others being at New York and New Orleans, where shipping men say it has resulted in a marked increase in business.

Heretofore, foreign cargo coming into San Francisco had to pass through customs at once. Under the new setup, raw material can be brought in for temporary storage or for processing before it is brought into this country, which frequently results in a saving on duty. A product may be brought from abroad in bulk and packaged in the free trade zone or converted into its finished state.

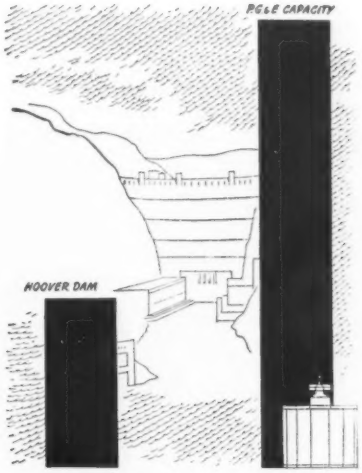
Several firms have already contracted for space, for the packaging and labeling of bulk liquor, food and dyestuffs, sorting, cleaning and grading of seeds, and cleaning and packaging of dried beans. Foreign shipments destined for transshipment to another foreign country may be stored in the zone without being held in bond.

*(Continued on page 62)*

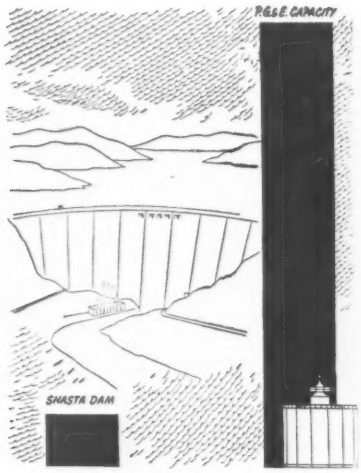
# America's biggest power-building program

*In three and a half short years...between now and the end of 1951...P. G. and E. will add nearly two million horsepower in generating capacity. To help you understand how big this program really is... here are some comparisons.*

**It's the biggest program** of any electrical utility in America today...costing more than $400,000,000. It is now proceeding at more than $10,000,000 a month.




**Added to previous totals,** the new power will give P. G. and E. a generating capacity about three times that of Hoover Dam.




**Or 8 times greater** than Shasta Dam. This program, now in its third year, is going full speed ahead!

Here's a schedule of major new plants and completion dates which will be met unless there are further unforeseen delays.

| PLANT | CAPACITY | COMPLETION DATE |
|---|---|---|
| Kern Steam—First Unit | 101,000 horsepower | Spring 1948 |
| Electra Hydro | 133,000 " | Summer 1948 |
| Station "P" Steam | 298,000 " | Winter 1948 |
| West Point Hydro | 21,000 " | Winter 1948 |
| Colgate Hydro | 40,000 " | Summer 1949 |
| Cresta Hydro | 101,000 " | Winter 1949 |
| Kern Steam—Second Unit | 134,000 " | Spring 1950 |
| Rock Creek Hydro | 169,000 " | Summer 1950 |
| One Steam Unit | 150,000 " | Summer 1950 |
| Five Steam Units | 150,000 " each | Year 1951 |

*Work never stops on our power-building program*

**P·G·and E· PACIFIC GAS AND ELECTRIC COMPANY**

W.I. 107-748

*(Continued from page 60)*

General Mills' new packaged food plant for its Sperry division at Lodi was officially opened last month, with an open house in which an automatic pancake machine turning out pancakes for the guests to sample was a feature. The plant, 720 feet long, contains 107,000 square feet of floor space and the layout includes a one-story warehouse 480 feet long and a four-story manufacturing unit.

All of the incoming wheat and corn is conveyed pneumatically from the box cars to round steel storage bins. The system is capable of handling 50,000 lbs. of bulk flour an hour or 1,000 bushels of wheat. Use of screw conveyors is so designed as to hold dead stock to a minimum. They are fitted with quick opening drop bottoms to assist in the planned housekeeping program. Conventional bucket-type elevators have been eliminated. Approximately 5,000,000 cases of packaged foods a year will be shipped from this Sperry unit to all the Western states.

### Amino Plant Inspected

International Minerals & Chemical Corporation have joined the list of corporations who have brought their board of directors out to the Pacific Coast for a meeting, a practice in which U. S. Steel Corporation and the Santa Fe Railway were among the first. These "visiting firemen" included such notables as Thomas S. Lamont, vice-president of J. P. Morgan & Co.; David M. Milton, president, the Equity Corporation and Subsidiaries; R. Douglas Stuart, president, Quaker Oats Company; Henry S. Sturgis, vice-president, The First National Bank of the City of New York; Francis M. Weld, White Weld & Company.

They inspected the new amino products plant at San Jose, where mono sodium glutanate, an amino salt used for food flavoring, is manufactured from beet sugar pulp after the refineries have taken off the sucrose. California was chosen for a location because there were so many beet sugar refineries within convenient reach. The pulp is first evaporated at the refinery to reduce the water content, and is then transported by tank car or tank truck in a form known as concentrated Steffens filtrate to the San Jose factory.

International Minerals and Huron Milling Company are also making this amino salt from wheat gluten in Ohio and Michigan, and the Staley organization is reported to be extracting it from corn gluten. Great Western Sugar Company are constructing a pilot plant at Loveland, Colorado, but their processing will need to be slightly different, it is understood, because the Colorado beets are not as rich as those grown in California.

R. W. Shafor is general production manager of the San Jose plant, and F. H. Catterson resident production manager, while E. H. Hungerford is development manager there. The plant operates around the clock, with processes almost entirely automatic. Corrosion problems from glutamic and hydrochloric acids present difficulties, as does also the determination of glutamic acid in the material. Consequently several different methods of control are necessary.

Here's Where WESTERN INDUSTRIES
GET THEIR AUTOMATIC SCREW MACHINE PARTS
• PACIFIC IS THE WESTERN PRODUCTION CENTER Of High Quality, Low Cost PRECISION PARTS
Pacific's leadership is the result of consistently outstanding service to leading manufacturers throughout the West. Skilled technicians with years of experience in handling the "tougher" jobs, give special individual attention to every order. Twenty specialized departments are completely equipped with latest type automatic screw machines, Acme-Gridleys, Conomatics, Brown-Sharpes, Clevelands, Davenports and the machines for secondary and finishing operations. Our 400 spindles are always scheduled to put the job through on time. Why not let a leader in service and progress solve your parts requirement problems?
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SCREW PRODUCTS CORP.
Largest and Best Equipped Screw Machine Plant in the West
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## GOOD ACCOUNTING

*(Continued from page 52)*

better equipped to do this work. Although the savings in this case do not show up so plainly as in the previous examples, they were there. First, the manager released of all the worry and work of the accounting could concentrate on the selling and delivering of his material. Secondly, he received all the tax savings he was entitled to. Third, keeping the accounts receivable accurately and up-to-date drew the attention to past due accounts thereby reducing the bad debts.

5. In a large factory where the production fluctuated with the seasons a simple procedure was installed by the auditor involving little work and saving considerable money. Every morning the foreman of each department received a small slip of paper showing the cost of labor per unit in his department for the previous day. After a few days a spirit of competition arose among the foremen to see which one could reduce his cost.

### Washington Payrolls Show Million Gain

Thirty-five out of 39 counties of Washington reported increased industrial payrolls for 1947 over the previous year according to Gov. Mon C. Wallgren. During 1946 payrolls had dropped to $895,202,000 but last year climbed to $1,040,749, according to statistics compiled by the department of labor and industry. Man-hours of employment in the state are now estimated to be 77 per cent above the pre-war period with something over 360,000 more industrial workers in the state than prior to 1942.

Counties, in the order of their industrial employment, are led by King County where in 1947 there were 260 million man-hours of work expended and payrolls amounted to $394,000,000. Spokane County placed second in man-hours with 74000,000, but followed Pierce County (Tacoma) in payroll total. Pierce County showed about 69,000,000 man-hours and payrolls of $101,000,000.

### Portland Area Hit by By Columbia Flood

Just as the month of May ended industrial establishments along the lower Columbia River were feeling the effects of a record flood, the highest water since 1894. Bonneville dam lost about 60 per cent of its normal generating capacity when the river rose, reducing the available head. Grand Coulee Dam was unable to reach its maximum peaking capability, but was able to maintain its full rated generating capacity.

A number of industrial plants in the Portland-Vancouver area were forced to close, and transportation services both upstream and downstream were at a virtual standstill. A 15-pound steelhead was reported to have been caught on the platform of Portland's union station.

SPOKANE—First water was turned into a unit of the Columbia Basin project on May 15 when a small pumping plant began operations at Pasco to irrigate 5700 acres of land at the southern tip of the project area. Operation of the upper portion of the project, which is expected to remake the central portion of the state, will not be started for at least four years.

Timber cutting in the Inland Empire is 33 per cent above last year for the first three months, according to a report of the Forest Service. Most of the timber is being harvested in northern Idaho and Montana with a small amount in eastern Washington.

TACOMA—Brown & Haley, candy manufacturers, have completed a 15-month program of remodeling and equipment installation at a cost of $350,000. An open house was held at the plant about the middle of May to celebrate completion of the improvements.

Construction of the Tacoma Narrows bridge has been started by Bethlehem Pacific Coast Steel Corp. under the direction of the Washington Toll Bridge Authority. The new and larger structure will replace the 2,600-ft. suspension span which was destroyed by wind less than six months after it had been completed in 1940. The bridge will provide direct vehicular connection with the Olympic Peninsula.

### Wood Pulp Shows Quarterly Gain

Paper manufacturers are becoming more and more independent of foreign sources for wood pulp, according to a report of the United States Pulp Producers Association. In 1939, 47 per cent of the pulp used in this country was imported, while only 21 per cent was brought from overseas last year.

Paper shortages may be eased somewhat in the near future, judging from the statement of Fred G. Stevenot, Puget Sound Pulp & Timber Co. president. Domestic pulp mills recorded an increase of 6 per cent, or 185,000 tons during the first quarter of 1948, compared to a year ago, he said. New pulp supply provided out of domestic production and imports for the first quarter exceeded last year's record by 326,000 tons, or 10 per cent. Production of chemical pulps showed an increase, but mechanical pulps, used for newsprint, showed a drop of about 30,000 tons.


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# Rocky Mountain Business Shows Upswing for 1948

***Wyoming Governor eyes Senate post; Denver looks for million population; oil industry is on the boom***

DENVER—There's a hot wind blowing across the Wyoming prairies these days and it carries a strong whiff of politics. It may be the last we'll be seeing of Senator E. V. Robertson of Cody, Republican holder of the other Senate seat for Wyoming (everybody knows about Senator Joseph O'Mahoney of Wyoming, the Democrat reelected last year and President Truman's choice as his running mate in '48).

Senator Robertson has a real battle ahead of him this fall, despite the fact that it is likely to be a Republican year. But Robertson is rich and his cohorts are as brainy as they are well-heeled. Robertson has been able to make political capital of the dissatisfaction many of his constituents feel with the Democrats in Washington. The cattlemen hate the government, as do the oil men and the general run of small businessmen.

What industrial population Wyoming has would be expected to be on the other side of the fence, staunchly anti-Republican, but there just aren't many industrial workers in Wyoming — and chief among these are the coal miners who lay down and roll over at the command of John L. Lewis, who doesn't waste any love on Mr. Harry Truman and his associates. It looks like any Republican incumbent in Wyoming would have a cinch for reelection this year but don't pick up the marbles yet — wait until the man in Wyoming's state capitol at Cheyenne is heard from.

Lester Hunt, governor of Wyoming, is the only dentist in modern times who has attained such eminence as a vote-getter. Big, genial, progressive Les Hunt is a vote-getter because he has a solid record of achievement behind him and he always seems to come out on top in the perennial squabbles that feature Wyoming politics. He saw Senator Joe O'Mahoney sweep to victory last year in spite of the national Republican swing, and figures he can do the same sort of thing this year.

Incidentally, the Wyoming Democrats are baffled by the problem of what to do if Governor Hunt should be elected to the Senate. His term as governor has more than two years to run. The state has no lieutenant governor and in the governor's absence the Secretary of State takes over. This office is held by a brilliant Republican vote-getter, long-time president of the state university, R. L. Crane. Various political shenanigans are being discussed to avoid the calamity of winning a Senate seat only to sacrifice the governorship.

### Denver Eyes Million-Mark

Having been told that a city grows more rapidly after it passes the half-million mark, Denver now is getting braced to make its first million in 1982. Well, by 2002, at most. Such is the prognostication of George F. Hughes, manager of the Denver Board of Water Commissioners, which spends more money every year than a lot of states ever see. Hughes figures Denvers' population in the spring of 1948 at 505,000 and he points out that this is right on the nose according to his predictions as of the year 1922. The surprising fact that the quarter - century - old prediction panned out exactly right lends credence to Hughes' belief that Denver will join the million-or-more class before the end of the present century.

### Power Scarcity?

Joining the predicting business, R. W. Booze of the Federal Power Commission declares that there will be a drastic power shortage in the Missouri Basin states just 22 years from now. Of course, he has an "unless" to qualify his viewing-with-alarm. He is out to boost electric power development, by private means or otherwise, and the scarehead prophesy comes in handy when recalcitrant politicians and sleepyheads generally fail to realize that a growing empire with a huge undeveloped industrial potential has gotta go get itself a lot of horsepower, somewhere, or face a very sad situation.

Booze told his tale to the governors of the ten Missouri basin states, with lots of power company and public power officials present. He said current power demands would double by 1970. New power projects of the army and Bureau of Reclamation are barely holding their own, with the added power being absorbed as rapidly as it is created.

Incidentally, one of the army engineers reported that construction costs aren't so high as had been expected and allocated dollars are stretching surprisingly far these days. For example, the Cherry Creek Dam, which will keep Denver from disaster by flood, is costing only $16,000,000 instead of the $19,000,000 estimated for the job The Cherry Creek project and other army power-and-flood-control projects in the Missouri Valley are under the direction of Major General Lewis A. Pick.

### Business Picking Up

The doldrums that seemed to have the Rocky Mountain region in its grasp during the early part of 1948 have been shaken off, businessmen report. The second quarter of 1948 showed a decided pickup, not only in comparison with the first quarter but in relation to the same period last year. Carloadings for the third quarter are expected to show a 6.5 per cent jump compared with last year, despite a continued shortage of open-top cars for shipping coal, iron and other heavy products. The boxcar shortage has been dispelled, at least temporarily, although the grain crop always puts a heavy strain on all rolling stock.

Much of the present satisfactory condition is due to close cooperation between transportation men and shippers in the Central Shippers Advisory Board, which met recently in Denver at the Shirley-Savoy Hotel. Those who took leading parts in the group include H. W. Ansell, general chairman and general traffic manager of the Utah Idaho-Sugar Company; W. H. Marriott, vice general chairman and secretary and traffic manager of the Sioux City, Iowa, grain exchange; and Edward J. Vojtech, general secretary of the board and also general secretary of the Bemis Broth-

*(Continued on page 66)*

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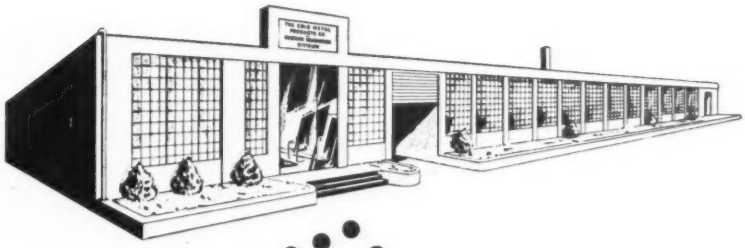

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(Continued from page 64)

ers Bag Company, Omaha, Nebraska. The board was organized in 1923 to advise the railroads and other carriers on carloading prospects and to analyze transportation needs.

### Mining Subsidy Favored

With withdrawal of the opposition of Interior Secretary Julius Krug, it looked like smooth sailing for the Russell bill to subsidize low-cost mining operations. Earlier it had appeared that a presidential veto was certain if the bill were passed. Quick action has been promised in both House and Senate, following weeks of negotiation between mining interests and Secretary Krug. Many modifications were agreed upon by the Western mining men, in order to obtain Krug's promise not to fight the measure.

Arguments of the Interior Department centered on the premise that the bill would not increase production of scarce metals. Mining interests want everybody to enjoy the subsidies, including large operators and those with relatively little production of scarce or strategic metals. The resulting compromise steers an intelligent middle-of-the-road course, providing needed assistance to hard-pressed operators and at the same time not being a mere grab-bag for everyone to enjoy on a "help yourself" basis.

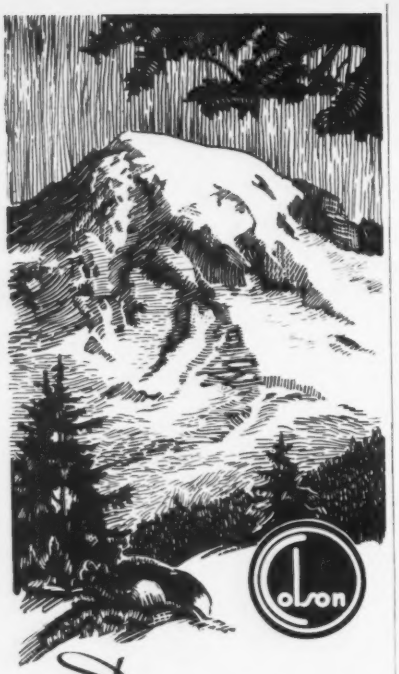
### Denver Importing Center

Something peculiar in postwar business is evident in Denver where a man named Irving Ruby has developed a thriving nationwide business as an importer of toys from occupied Japan. Ruby says that government subsidies equalize shipping rates so that Japanese products can be laid down in Denver as cheaply as in San Francisco, and since Denver has lower rates to the eastern seaboard the Mountain States importer can outdo his Pacific Coast competitors in supplying New York and other eastern cities. He says General MacArthur's government encourages the Japanese to produce toys and other salable commodities in order to make the Japanese self-sufficient and get the country "off of the United States dole." The mechanical toy business largely monopolized by Germany before the war now is swinging over to the Japanese, according to Denver's enterprising Mr. Ruby.

### Oil Business Humming

Another round of price increases in the petroleum industry is foreseen in recent activities, including the rapid rise in oil company stocks on the New York stock exchange, success of smaller operators in forcing the "majors" to pay higher prices for crude oil from Elk Basin and other Rocky Mountain oil fields, and a general practice of paying subsidies of one sort and another for crude stocks, badly needed by refiners.

Wyoming continues to be the West's fair-haired boy so far as the petroleum industry is concerned. And what is evident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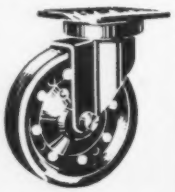

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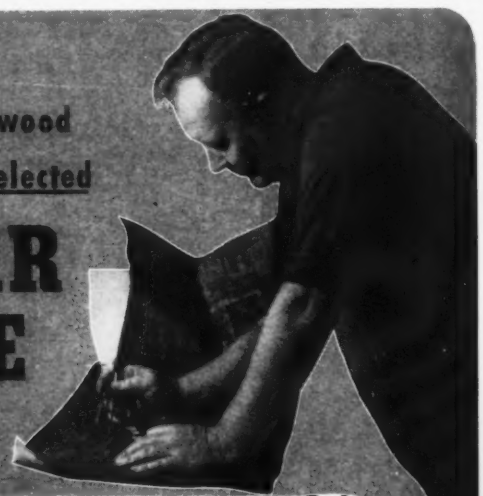

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on the surface is peanuts to what is seething among the insiders, according to reports in Denver, Casper and Los Angeles. Many important oil discoveries in the Mountain States, particularly Wyoming, have been played down deliberately in order to complete leasing programs before a heavy drilling program gets underway. Other fields of great promise present technical difficulties that take time to solve, with resulting development work proceeding slowly in spite of the great importance of discoveries already announced.

In recent months Casper, Wyoming, has been almost a madhouse with oil operators, drilling contractors, manufacturers of drilling equipment and other oil industry personnel scrambling for every square foot of office, warehouse and residential space. Even the booming Leduc oil field in far-away Alberta is having its effect on the Wyoming oil industry, since most of the manufacturers of oil country equipment now handle business in the western Canada oil fields as part of their Rocky Mountain operations, rather than as something for their export offices to take care of.

Alberta has become one of the most important oil "states" in the Rocky Mountain area and currently is one of the continent's most active drilling districts. Incidentally, the Eastman Oil Well Survey Company of Denver was called on to supply its experts to attempt to check the "wild well" that caused the complete shutdown of Alberta's Leduc field. The Eastman system of controlled directional drilling, first developed for underwater drilling off the California coast, has proved effective in stopping many of the great fires in oil fields of Texas, California and the mid-continent area. Perhaps by the time this appears in print, the great Canadian "wild well" will have been conquered by the same sort of technology, comonly known as "know how."

### A-Plants Opening

Uranium will be received this summer at the new plants of the atomic energy commission at Durango, Colorado, and Monticello, Utah. Both plants were expected to open for business during the month of July, according to Jesse C. Johnson, deputy director of raw materials.

Carnotite and roscoelite type ores mined in western Colorado and eastern Utah will be shipped to the new plants this summer, but actual processing of the ores will not be started until after the first of the year, Johnson said.

The Monticello plant was built during the war by the Defense Plants Corporation. U. S. Vanadium built the Durango plant. Both were inactive when the atomic energy commission's new program got under way. Enlargements and other alterations are being made at both plants while ore is being stockpiled. Additional plants in the area may be leased if the production of fissionable ores justifies such a step, it was indicated.

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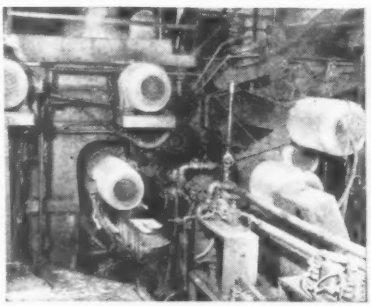

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These motors are exposed to water, steam, high ambient temperatures and overloads. After several failures, the bottom-most motors, which carry more than their share of the 12,000 pound load, were rewound with Dow Corning Silicone Insulation. Average life of Class B motors in those spots was 2 months. The silicone insulated motors were still in service after 14 months.

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# Industrial Mineral Resources of Northwest Reviewed

***Phosphates held most important; new uses found for "hasbeen" minerals; block-caving tried at Bunker Hill***

PACIFIC NORTHWEST — Phosphate (currently being developed in Idaho and Wyoming) is the most important mineral in production today, according to James A. Barr, Jr., minerologist with the applied research laboratories of Armour & Co., Chicago, who spoke before the Northwest Industrial Minerals Conference at Portland early in May. His subject was industrial mineral flotation with particular reference to froth flotation.

Florida is currently the largest phosphate producing state, and successful concentration of low grade phosphates by the flotation process have materially increased known reserves of the minerals. Attempts at concentration of low grade Western phosphates by this process have not met with much success up to the present time. (The Simplot projects in Idaho use electric furnace reduction.)

The subject of phosphates was also mentioned by Richard J. Anderson, research engineer with the Battelle Memorial Institute, Columbus, Ohio, and formerly managing engineer of the Raw Materials Survey, Inc., at Portland. Speaking on industrial minerals research, Anderson stated that phosphate rock contains some fluorine which is now being wasted in phosphate rock processing. The possibility of fluorine being used as a rocket fuel in the future indicates that an already short supply may be aggravated. Utilization of the waste fluosilic acid from the phosphate flotation process is a potential source of fluorine.

Aside from phosphate and fluorine, Anderson mentioned a number of other minerals briefly that may be of increasing importance in the future to Northwest industrial development. Idaho clays, which in the past have been considered to have too low a kaolin content to be commercially feasible, are relatively high grade when compared to southeast clays which are being processed into a marketable product. A careful investigation of the Idaho deposits with consideration of modern processing methods was recommended.

An increasing demand for cobalt was reported as a constituent of high-temperature alloys required for the production of jet engines. Production of this mineral from a cobalt-copper-gold ore in Idaho is expected to be underway next year by a subsidiary of the Howe Sound Co. The extent of the deposit and magnitude of the operation is expected to make the U. S. independent of foreign cobalt sources.

Low grade limestones in Oregon and Washington may prove to be useable as a result of application of the flotation process to the raw material. Cement demands in the east have led concentration of calcium carbonate by flotation. A similar process applied to Northwest limestones might be adapted to the removal of hematite and siliceous materials.

Monazite, a complex mineral formerly used in great quantities for incandescent mantles in gasoline lamps, shows promise of new importance from two standpoints. Only a few years ago it was classed as a "hasbeen" among minerals, but recently a cerium-magnesium alloy has been developed for use in jet engines and cerium is one of the primary constituents of monazite. Thorium, a rare, radio-active element found in monazite has assumed importance in the atomic energy program. Low grade deposits of monazite are found near Boise, Idaho, and increased demand for cerium and thorium may result in renewed activity in that area.

**SEATTLE—Five new industries were reported here during the month of April. Two industrial establishments moved into new plants during the same month, and seven companies completed expansion programs. Total capital expenditures for the 14 plants involved amounted to $1,509,000.**

**Monsanto Chemical Co. opened its new $1,000,000 plant for the manufacture of soybean flour and wood preservatives about the middle of May. At the same time Edgar M. Queeny, chairman of the Monsanto board announced that an additional $4,000,000 will be expended for expansion of the plant.**

**An addition to the light metals industry here is Moss Products Inc., which has recently begun production of magnesium safety helmets.**

Interest and attendance was so great at the minerals conference (Henry Mulryan, Western vice-chairman of the industrial minerals division of the American Institute of Mining and Metallurgical Engineers, stated that it was the largest meeting of its kind ever held in the United States) that plans are already being formed for a similar meeting next year. Sponsorship of the 1949 meeting will be divided between the Columbia Section of the American Institute of Mining and Metallurgical Engineers, the Northwest Mining Association, and the Spokane Chamber of Commerce with the meeting to be held in Spokane.

Although the importance of industrial minerals to industrial development in the West is a generally accepted fact, as witness the mining and processing of diatomaceous earth for the sugar industry and more recent developments of pumice and perlite for the building industry, the romance and glamour of precious metal mining and processing overshadows industrial minerals in the present as it has in the past. Much attention is being directed toward the Coeur d'Alene area of northern Idaho where silver is a big attraction with zinc and lead also of major importance.

Near Wardner, Idaho, Bunker Hill and Sullivan Mining and Concentrating Co. will soon undertake the first block caving of silver-zinc-lead ores, a method more commonly used in copper mining. Bunker Hill and Sullivan is the oldest and one of the largest of the five principal operators in the Coeur d'Alenes. Preparations for the block-cave project have been underway for about a year and production is scheduled to start in the early fall.

Fine veins of ore, sometimes of only hair-width, but spaced closely enough together to make the operation feasible, are

*(Continued on page 70)*

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(Continued from page 68)

the object of the block-cave project. An underground crushing plant is being installed to reduce rock size before it is transported to the concentrator where it will supplement the higher grade ore to occupy full plant capacity. The company has blocked out about 5,000,000 tons of material for the first operation which will be carried out at the rate of about 1,000 tons per day.

A block about 200 feet square will be the first to be caved. The deposit blocked out for operations runs about 1,000 feet long by 175 feet wide at a depth of about 300 feet below the surface. Mineral content is about 60 pounds of combined lead and zinc and about half an ounce of silver per ton of ore.

Farther south, near Hailey in southern Idaho, the Triumph mine is planning an innovation in equipment as far as mining practice in that state is concerned. Within a couple of months it is planned to replace the battery-operated haulage units with diesel motors. The state has not had safety regulations applicable to diesel operation, but has approved the use of diesels under a nine-point safety program which will include, among others, a daily check of carbon monoxide content. The Triumph produces zinc, lead, silver, gold, and copper.

Another development in the southern Idaho mining industry is the recent announcement by the Bradley Mining Co. that a $1,000,000 smelter for the reduction of antimony will be erected at Stibnite. Crude antimony will be produced from an electromelt furnace after which arsenic and iron will be removed in two refining furnaces. The antimony will then be air-blown in two butane-fired converters resulting in an antimony oxide with a residue of gold and silver. Antimony oxide will be marketed as such, or reduced to the pure metal, depending upon demand.

**PORTLAND**—Thirteen new industries were reported here during the month of April. Among the new products which will be added to the industrial output are aluminum oil storage tanks, plywood boats and farm and garden tractors.

Portland Plywood Corp. has started construction of a new mill which will have an annual production capacity of about 36,000,000 feet.

National Biscuit Co. has acquired property on which to construct its $6,000,000 bakery for which plans were announced late last year. Construction of the plant is expected to start in July with first production scheduled for early 1950.

Three local shipyards have been listed by the federal munitions board as vital to national defense. The Commercial Iron Works, Oregon Shipbuilding, and Willamette Iron & Steel Co. yards should be kept in condition for possible reconversion to war production according to the board report.

A recently completed survey of the aircraft industry in the metropolitan area of Seattle shows that the annual expenditures are well over $100,000,000. The survey was made under the direction of the aviation committee of the chamber of commerce, and was made on an individual, person to person basis, and the results should be considerably more accurate than the usual questionnaire-type survey.

Aircraft manufacturing with one major (Boeing) and one minor (Hoppi-Copter) represents just about 50 per cent of the total in Seattle. With nearly 17,000 employees and an annual payroll of about $42,600,000 manufacturers have a capital investment of $107,240,000 and are currently engaged on an order backlog of $230,000,000. Principal expenditures aside from payroll and miscellaneous classifications, are for tools and equipment and for maintenance of plant.

The remaining 50 per cent of the expenditures by the aircraft industry in the Seattle area are accounted for by the service end of the business including scheduled and non-scheduled air lines, private flying, sales and services, airports, and allied aviation industries. Scheduled air lines account for the bulk of the service expenditures, about 73 per cent, and non-scheduled air lines account for another 10 per cent.


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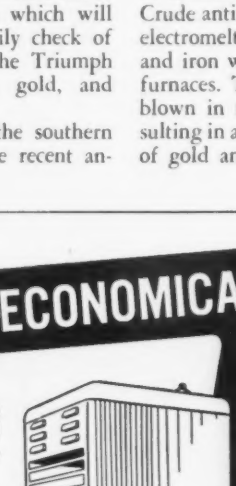

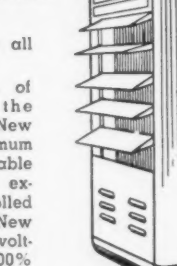

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BRIEF SPECIFICATIONS

| Model | Standard Stroke | Shut Dia Height | Bed Area | Strokes Per Min. |
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| Back-Geared 56-Ton | 3" (Max. to order 8") | 16" | 20" x 30" | 18 |

Made in both plain and back-geared types, there's a Diamond for every requirement from 9-ton to 56-ton capacities. Write for free descriptive circulars on the complete Diamond line.

*New Diamond 56-Ton back-geared open-back inclinable punch press.*

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DIAMOND [illegible] -FIRST IN STRAIN GAUGE ANALYSIS

On an annual basis scheduled air lines are bringing into Seattle a total of 5,921,000 pounds of mail, express and freight, and they are carrying out of Seattle 9,082,000 pounds. Non-scheduled air lines are carrying something over a third of the total cargo movement, accounting for 2,934,000 pounds of inbound freight and 6,782,000 pounds of outbound freight. The large excess of outbound cargo over inbound is probably due in a large part to Alaskan shipments, either originating in Seattle or arriving by other transportation means and being transshipped by air for expedient delivery.

### Cement Shortage

Cement production capacity increase of 25 per cent in the Pacific Northwest has been recommended by a committee of the Oregon Technical Council, a body composed of representatives from the various professional engineering societies in Oregon. The committee's studies indicated that the increased demand for Portland cement in the Northwest has created serious shortages since the end of the war. An estimate made in 1946 is now considered too low in view of the fact that present demands upon the cement industry are nearly equal to the anticipated demands of 1960.

When the large Federal projects (McNary dam, Foster Creek dam, Lower Snake River dams, and irrigation facilities of the Columbia Basin project among others) begin to get underway, their demand alone will be in excess of 3,000,000 barrels of cement per year for the next 10 years. With the present capacity of about 7,500,000 barrels per year in eight Pacific Northwest plants, and an actual production of a little over 5,000,000 barrels per year, it is obvious that if these projects are to be supplied with cement, some other customers must be neglected.

The minimum cement production to meet the requirements in the Pacific Northwest for the next 10 years is estimated to be 7,500,000 barrels annually. Based upon production at a rate of 72.5 per cent of plant capacity (which is considered to be the best that may be expected as an average over a 10-year period), the estimated total plant capacity required is 10,300,000 barrels per year, or 1,600,000 barrels more than the present capacity of existing plants and facilities now under construction. Present capacity of the eight plants in the region is 8,100,000 barrels, which will be increased to 8,700,000 barrels sometime in 1949 upon completion of an additional kiln at the Lehigh plant at Metaline Falls, Washington.

Present plants are considered to be strategically located with regard to market and raw material supply, freight and economy. Increased capacity is most justified in the Seattle, Spokane, Portland, and middle Columbia River areas. It is recommended that the cement industry increase production without undue delay by about 25 per cent.

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See Rapids-Standard's material handling equipment in booths 101-2-3-4 at the Western Packaging Exposition. See wheel and roller gravity conveyor at work. See power belt conveyors for every type of package handling. See Rapids-Standard Casters, floor trucks and hand trucks.

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MATERIAL HANDLING EQUIPMENT

# Steel Demand Up Six Times Over Pre-Geneva Days

***Fabricators now fear volume may not be enough to care for present production plus new plants expected soon.***

SALT LAKE CITY—When the Geneva steel plant was purchased by U. S. Steel Corp. two years ago virtually everyone in the Salt Lake area was "sold" on the idea that it would be an important and continuing tonic to the region's industrial health. But there were two schools of thought as to what a basic steel industry would mean in the way of subsidiary plants.

One school insisted that the Wasatch Front, being far removed from major consuming centers, could not expect to acquire anything substantial in the way of fabricating industries . . . perhaps a few small ones to supply local demand, but nothing which would be industrially important.

The other school was equally insistent that Geneva would bring in its wake a very substantial development in satellite plants; a development that in time might over-shadow the basic steel industry itself.

By way of an interim report on what the first two years have brought, here is the picture:

Established fabricators, such as EIMCO and the Lang Co., have expanded their operations by several times.

Chicago Bridge and Iron Company has constructed a plant in Salt Lake City, and a substantial enlargement program is in the wind.

Structural Steel & Forge, a subsidiary of EIMCO, has announced plans for a $1,000,000 steel pipe plant.

Pacific Cast Iron Pipe Co. has embarked upon a $2,500,000 expansion program.

Two or three other new companies are studying the feasibility of establishing plants in the area.

The demand of local fabricators for steel is about six times what it was B.G. (before Geneva). And when projected plants are completed it will be in the neighborhood of ten times the B. G. market.

These figures are not made up of publicly announced requirements of the firms. But they are the estimates of an observant individual in the fabricating industry. He figures that the local demand before the war was in the neighborhood of 15,000 tons annually. And his estimate of the demand when presently projected plants get into operation is 150,000 tons annually.

The apprehension that the steel market would not be sufficient to support a profitable operation at Geneva has now changed to apprehension (among fabricators at least) as to whether they will be able to get the volume they want.

Local fabricators anticipate an additional stimulus for their business if the Federal Trade Commission succeeds in eliminating the basing point pricing system.

One intermountain industry which is deeply disturbed by the attack on basing point pricing and freight absorption is beet sugar. Strict application of the recent ruling in the cement case, one spokesman believes, would just about wreck the sugar industry.

It has always been the practice of the beet sugar companies to base prices for their nearby markets on the price of imported cane plus freight. This is the profitable market, and the margin of profit decreases as the distance of the market from the point of production increases. For the freight costs must be absorbed to keep beet sugar competitive with cane.

As the sugar people see it, strict elimination of freight absorption (or the charging of "phantom" freight) would give a sugar factory a monopoly in its immediate area but prevent it from moving out into distant markets. Inasmuch as a state like Idaho produces some 5,500,000 bags and consumes 300,000 bags, there would be small comfort in the well protected local market.

The inevitable effect, according to the sugar people, would be trim volume down to area consumption, and thereby increase production costs to a point which would make it impossible for the beet refinery to operate at all.

Chief critics of the present sugar pricing system are the intermountain candy manufacturers. They bitterly complain that they must pay almost $1 per hundred pounds more for sugar produced in their own back yard than their Chicago competitors are charged.

The sugar manufacturers are inclined to believe, and are fervently hoping, that the

*(Continued on page 74)*

**• The Foremen's Club of Grayson Controls Division, Robertshaw-Fulton Company, has won the Pacific Coast Championship in form of an achievement award. (Left to right) Edward O. Seits, NAF Zone "A" director and member of North American Supervisory Club; Walt Conaway, Zone "A" director, member of the Grayson Administrative Conference; Don Thorpe, board of control member of Grayson Administrative Conference; Armon Andrews, vice-president of Grayson Administrative Conference; Frieda McIntyre, secretary-treasure of Gayson Administrative Conference; and Tom Jeffers, president of Grayson Administrative Conference.**

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*(Continued from page 72)*

cement ruling will not be applied to their industry.

The Bureau of Economic and Business Research at the University of Utah has started publishing a quarterly review of business to give businessmen and industrialists an accurate picture of local economic trends. The issue for the first quarter of 1948 shows a substantial increase in key industries over the first quarter of 1947 or the last quarter of 1947. One exception was coal. And the decrease there was accounted for by a strike.

### And Now We Have Malleable Castings

Malleable iron castings, reported in the March issue of *Western Industry* as a likely important development for the manufacture of automobile parts on the Pacific Coast, are about to become a reality. General Metals Corporation have a $1,000,000 addition to their Los Angeles plant for this purpose under construction, scheduled for completion next September.

Capacity will be 400 to 500 tons of castings a month.

The annealing cycle will be reduced from the presently required five to seven days to 48 hours, which will make immediate deliveries to customers possible.

A cupola to air furnace melting process at the plant will be capable of producing 40 to 50 tons of hot metal per day. Automatic sand handling and continuous conveyors will be used for molding. Electrically heated furnaces are being installed at a cost of $100,000 per unit.

### Palletizing Speeds United Cargo Loading

United Air Lines is the latest of the large cargo handlers to discover the speed and economy to be found in "palletizing." A technique new to the loading of air cargo has been developed which speeds up conventional methods five times.

Pallets are 30x46-inch magnesium metal bases, and freight is put aboard planes as one unit. Special pallets with cage sides are used for small packages and high value shipments under seal.

Test loadings carried on during the past year at high volume freight points by United showed that one hour's loading time could be saved on transcontinental Cargoliner flights. Glyn Johns, superintendent of cargo service for United helped perfect the new methods now in use throughout the system.

### Synthetic Fuel Tax Relief Seen

Possible tax relief for producers of synthetic fuels from coal may come from two bills introduced in Congress in the last-minute rush before adjournment or recess on June 19.

Senator O'Mahoney introduced a bill to provide for percentage depletion in the case of oil shale mines and in the case of coal mines where the coal produced is for production of synthetic liquid fuels. The percentage rate proposed was 27½.

Congressman Ellsworth has introduced a bill to provide for an amortization deduction (to be spread over a period of 60 months) in the case of plants constructed for the hydrogenation of coal, the synthesis of liquid hydrocarbons from gases produced from coal, or the production of shale oil from oil shale.

### More Sawmills In California

The number of active sawmills in California increased from a total of 226 in 1941 to approximately 1,300 in 1947, about 500 per cent gain. Production of lumber during the same period increased from approximately 2,250,000,000 feet in 1941 to about 3,250,000,000 feet in 1947, a little less than 50 per cent increase. The approximate number of employees manning the 226 mills in 1940-41, was approximately 18,000 or roughly 80 per mill. In 1947, approximately 35,000 men were manning 1,300 mills, an average of about 27 men per mill.

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### Smoot-Holman Co. Observes Thirty-Third Year

Smoot-Holman Company, Inglewood, Calif., manufacturers of pressed steel plumbing fixtures and of industrial, commercial, fluorescent and outdoor lighting fixtures, are celebrating their Third-of-a-Century anniversary this year.

The company was established in 1915 by C. E. Smoot, president, and G. W. Holman, vice-president.

While the main plant of Smoot-Holman is in Inglewood, they have a branch and warehouse in San Francisco and offices in the principal Western cities.

### Wirebound Box Clinic

Wirebound box manufacturers on the Pacific Coast recently held their second clinic in San Francisco on technical problems involved in the manufacture and use of wirebound boxes. Representatives were present from California Barrel Co., Timber Products Co. of Medford, Oregon; Martin Bros. Box Co. of Oakland, Oregon, and Whittier, California; and Linnton Box Co. of Linnton, Oregon. The clinic was conducted by Harry Walsdorf, research and design engineer from the Package Research Institute, and Elmer Galvin of the Wirebound Box Manufacturers Association.

### Cementquick

Packaged cement mixes are being offered to the small consumer in the Pacific Northwest. A Portland building materials company is putting up three combinations of cement and aggregate in 90-pound sacks for which only the addition of water is necessary to provide mortar for laying walls, constructing sidewalks, or facing walls.

### Oil Conservation

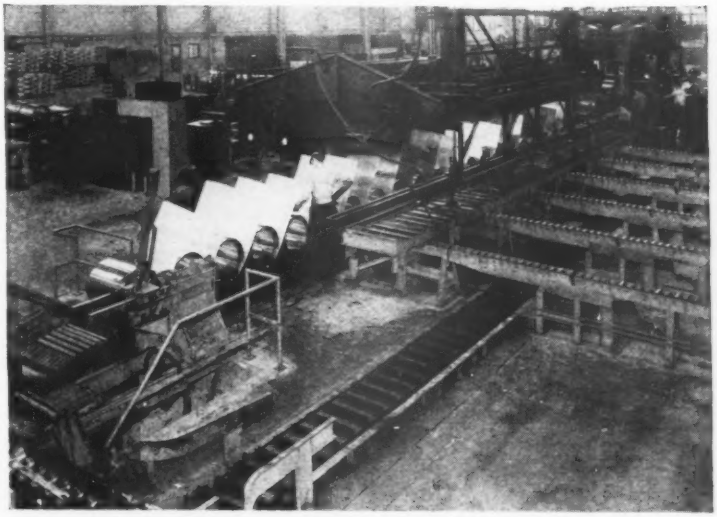
New legislation is badly needed in California for the conservation of oil and gas, and there should be a law requiring a unitization program for the repressuring of oil fields, if a great majority, say 80 or 90 per cent, are in favor, according to A. C. Mattei, president of Honolulu Oil Corporation. There should also be a legalized method of unitization for secondary recovery operations, he told the American Petroleum Institute's Pacific Coast district production meeting in Los Angeles early in May.

### More Hanford Land

The Hanford Plutonium Project will be nearly doubled in land area, the Atomic Energy Commission announces. It already comprises 126,000 acres, and 104,000 acres more will be purchased.

### Pine Output

California was the biggest producer of Western pines and associated species in 1947, the Western Pine Association reports. Oregon was second, Idaho third, Washington fourth, and Montana fifth.



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# West Still Leads As High-Wage Area

WAGES in the West have been 15 per cent higher than anywhere else in the country for the past 30 years, according to a study prepared by the Bureau of Labor Statistics of the U. S. Department of Labor. The Far West, particularly the Pacific states, has long been a high-wage region, and while the rest of the nation is slowly catching up, the West continues to hold a substantial lead.

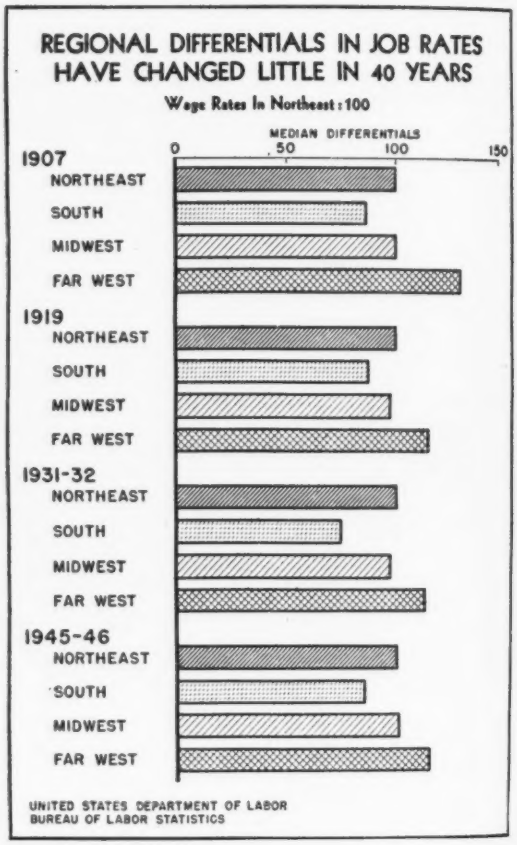
In making the survey of wages, the Bureau used the Northeast manufacturing states as the basis for comparison. In 1907, Western wages were as much as 50 per cent higher than those paid-like groups in the Northeast in at least one-fifth of the occupations covered. Since then, the differentials have been reduced, so that in 1945-46 only six per cent of the occupations in the Far West showed 50 per cent or more pay than in the Northeast.

Approximately 44 per cent of Far Western occupational groups have wages from 5 to 20 per cent above those paid in the New England area.

As the chart indicates, the wage differential has been changed materially in the past three decades, not because wages in the West declined but because pay in other sections of the country was increased. According to the study, the major decline in the position of the Far West took place in the years between 1907 and the early 1920's. Union rates for skilled building and printing occupations in the Pacific states, and farm wages in the Mountain states were more nearly equaled by those in other regions.

The average wage differential of the Far West over the Northeast amounted to 30 per cent in 1907; by 1919 the spread had been reduced to 15 per cent, and has been maintained at that approximate level ever since. "This evidence of long-term stability in the Far Western manufacturing wage differential is inconclusive insofar as short-run changes might be considered," states a report on the survey in a recent issue of the Monthly Labor Review. "It does, however, bear out the conclusion that the growth of industry and the heavy immigration of population that have characterized the development of the Far West during the past three decades apparently have not created a strong impetus towards the equalization of wage rates as between the Far West and the Northeast and the Middle West."

The average differential between the Far West and the Middle West was slightly larger for men than women; compared with the South the opposite was true.





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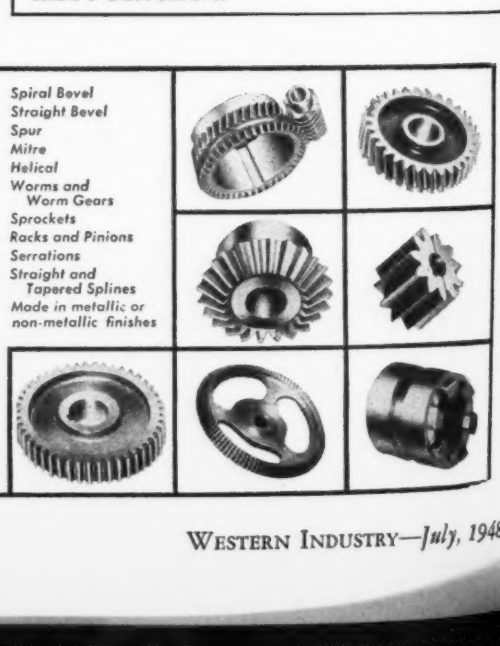

### Unemployment Pay For Forced Vacations

Plants completely shut down for vacation periods will make employees not receiving vacation pay eligible for state unemployment compensation benefits, according to a ruling recently issued by Judge W. A. Richmond of the Pierce County superior court, Tacoma, Wash. Opposing the rights of the employees to collect unemployment benefits were six timber products companies which maintained that the men were voluntarily unemployed because of provisions in the union agreement under which the men were employed.

The agreement specified that men working less than one year were not entitled to vacation pay, and men working one to five years were entitled to one week's vacation with pay. In August, 1946, the six plants closed for two weeks to permit all employees to take vacations. Workmen with less than five years' service applied for and were granted unemployment compensation by the Washington state employment security commission. The employers appealed to the superior court which has now upheld the commission.

Judge Richmond's ruling stated that, "to construe the vacation agreement as a voluntary relinquishment by the employee of his rights under the unemployment compensation act is to defeat the purpose of the act." Commenting further, he said, "the privilege or power to close down each plant, or to stagger the vacations in order to avoid the shutdown rested solely with the employers. Thus the appellants' claim that the men were voluntarily unemployed is not substantiated."

### State Ranks High in California Wage Survey

By December, 1947, California employment was 48 per cent over 1940; average hourly earnings in manufacturing industries were nearly double, but real spendable earnings had increased less than eight per cent for the single worker and less than 18 per cent for the worker with three dependents. These are some of the major conclusions of a monograph, *Wages in California — War and Postwar Changes,* by Nedra B. Belloc, research assistant in the University of California's Institute of Industrial Relations, which recently published her findings. California average hourly earnings were 17 per cent above the nation-wide average in 1946, and 16 per cent higher in 1947.

"Real spendable earnings" of some groups were found to be lower today than in 1940. This is particularly true among single workers, who have relatively higher income taxes to pay.


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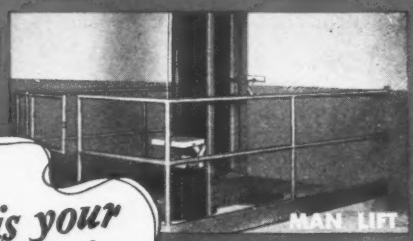
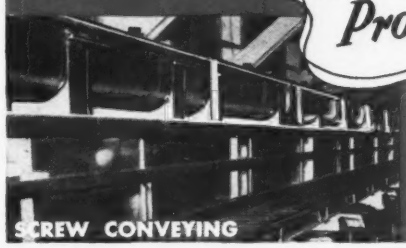



*What is your Problem?*



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# THE WEST ON ITS WAY

## ARIZONA

ROCK WOOL PLANT TO OPEN—A division of the Sun Valley Manufacturing Corporation will open shortly at 950 North Twentieth Avenue, Phoenix, for the manufacture of rock wool. It is expected that the plant will turn out between 25 and 30 tons of the product daily. Fred C. Ramsing is general manager. Other officers are Paul Rist, president, Paul Hopkins, vice-president, and D. C. Drill, rock wool engineer in charge of plant construction.

## CALIFORNIA

NEW CONTAINER PLANT—Closer alliance with the food processing industry that began in 1946 is seen in the announcement that Atlas Imperial Diesel Engine Company will build a $1,000,000 plant at Hayward for production of glass containers. Atlas bought the Modern Can Machinery Co., Chicago, and Benton Ballou Co., Ltd., at Ontario, two years ago, and the Fullerton plant of Continental Can Co. in 1947.

**• Holly Sugar Corporation mill at Carlton, Imperial Valley.**

NEW SUGAR MILL RUNNING—With a 2,700-ton daily capacity, making 900,000 pounds of beet sugar, Holly Sugar Corporation's new giant factory at Carlton, in the Imperial Valley, is making its first season's run. Plant is completely air-conditioned, and sugar silos are world's largest. Note marking near top of silo, showing depth below sea-level.

FACILITIES CONSOLIDATED — Los Angeles Chemical Co. has moved its Calkins Division to the general offices and warehouse at 1960 Santa Fe Ave., Los Angeles. Rapid growth of industrial and educational uses of laboratory supplies in the Pacific Southwest made a single location most practicable. No changes in personnel.

MOVES TO NEW QUARTERS—Montgomery Elevator Co. is now at 735 Tehama St., San Francisco, with enlarged floor space. G. A. Mizer is branch manager.

ROME CABLE COMES WEST—An interest in the Anderson-Carlson Mfg. Co., Torrance, Calif., has been acquired by the Rome Cable Corp., Rome, N. Y. The plant, with 55,000 sq. ft. of floor space, will manufacture electrical metallic tubing and allied products as soon as equipment is installed. Sales will be handled through Rome Cable's outlets. Frederick R. Weaver of Laguna Beach, Calif., has been elected a director of the Anderson-Carlson Co.

TUBE FACTORY FOR CHICO—Victor Industries, Brooklyn, N. Y., has plans for a plant at Chico, Calif., operating as Victor Industries Corp. of California, for manufacture of metallic collapsible tubes from aluminum slugs, used for toothpaste, shaving cream and other products.

REFINERY TO ADD ASPHALT TYPES—California Asphalt Corporation's new $1,000,000 refinery, San Francisco, plans to add a wide variety of air-blown asphalts to its output. The increased output will result from the addition of nine storage tanks with a capacity of 117,900 barrels, two large reactors and one surge tank.

CHASE BAG BUYS L. A. PLANT—Chase Bag Company, New York, has taken over a new plant in Los Angeles that was formerly operated by Southern California Bag Company.

DOW CHEMICAL TO EXPAND—New plants for the manufacture of xanthale and caustic soda are a part of the expansion plans of Dow Chemical Company, Pittsburg. Their investment is expected to be approximately $3,500,000.

DE BOOM PAINT — Construction has started on a new $150,000 building to house factory and offices of the De Boom Paint Company, at Twenty-second and Mississippi streets, San Francisco. There will be 12,856 ft. of floor space.

DIAMOND ACQUIRES PARKER LINE—Diamond Machine Tool Company, Los Angeles, has purchased the complete line of Parker power squaring shears and Multi-Max punch presses, previously manufactured by Parker Manufacturing Company, Santa Monica.

NAVY PART OWNER OF DOUGLAS—A Federal paper transaction with the RFC places Douglas Aircraft Company's El Segundo plant partly under U. S. Navy ownership. The plant is devoted exclusively to production of carrier-type planes. The Navy owns approximately half of the plant — the $14,000,000 portion built with RFC funds during the war.

MANUFACTURES PLASTIC KEYS—Electric Manufacturing Company, San Francisco, has a contract to manufacture plastic keys for Burroughs Adding Machine Company, and will spend $100,000 on plant expansion to create 100 new jobs.

PROCESSING PLANT TO BUILD—Feedstuffs Processing Company, San Francisco, will erect plant at cost of $175,000 and containing 18,700 sq. ft. for the manufacture of vitamin supplements for livestock and poultry feeds.

AIRPORT GROUND-EQUIPMENT CONTRACT — Gillillan Bros., Inc., Los Angeles, have been granted a $1,620,000 contract by the Civil Aeronautics Administration for installation of ground-controlled approach equipment at eight airports. The first installment will be made at the Los Angeles Municipal Airport.

GLIDDEN EXPANSION PROGRAM—The San Francisco part of the Glidden Company expansion program has been completed with the opening of a $300,000 plant, designed for the manufacture of alkyd resins and for varnish and oil processing.

LOS ANGELES FIRM TO HAVE BRANCH—Morris P. Kirk & Sons, Inc., Los Angeles smelting and refining firm, will establish a branch in Salt Lake City. The firm manufactures metal alloys used in aircraft plants.

THREE NEW HYDRO PLANTS—Los Angeles Department of Water & Power has authorized a $40,000,000 power revenue bond issue to finance construction of three hydroelectric plants at Owens Gorge and a 265-mile transmission line to bring power supply to Los Angeles. The new hydro plants are to be of 37,000 kw. capacity each.

THE HEAVIEST CASTING — The heaviest casting ever made was poured at the Macaulay Foundry of Berkeley recently. It was a flywheel for a 900-hp. supercharged Atlas Imperial diesel engine; the casting weighed approximately 22,000 pounds.

TELEPHONE COMPANY TO BUILD — The Pacific Telephone & Telegraph Company will erect a two-story office building at Lexington Avenue and Gower Street, Los Angeles. The new structure is designed to provide enlarged quarters for the district business records office, district plant and traffic offices and a plant engineering office.

THREE TONS OF AIR FREIGHT—One of the largest single pieces of air freight ever shipped was a 6,500-pound labeler, consigned to the Petri Wine Company, Stockton, and flown from Boston's Logan airport by a United Air Lines giant Cargoliner.

INJECTION MACHINE FOR L. A. FIRM—Reinhold-Geiger Plastics of Los Angeles has added injection facilities and will engage in limited injection molding operations, with a new approach to injection molding.

LOS ANGELES FIRM SOLD—Russell, Burdsall & Ward Bolt and Nut Company recently acquired the Los Angeles plant of Cooper Screw Manufacturing Company.

MANUFACTURING RESUMED—The manufacture and sale of Salsbury automatic clutches and automatic transmissions for one to 10-hp. engines have been resumed at the Salsbury Corporation, Los Angeles.

# 5000 LB. Elevating Endgate

## NEW—and it's a FRUEHAUF

## *A Big Lift for Industry*

HERE'S what you've been waiting for—an Endgate big enough and powerful enough to heft 5,000 lbs. —2½ tons. Pull a lever and up she goes. From ground to truck floor level in a few seconds. *And* you gain up to 72 inches of extra loading length, if desired.

Only Fruehauf furnishes a 5,000 lb. Elevating Endgate. We designed and built it upon the insistence of satisfied users of our 2,000 lb. gates. They said they want something similar in construction but with more heft. So, here it is.

This is a genuine time and labor saving device. The lifting is done by engine power instead of brawn—no injured backs or smashed shipments. Reduces damage claims for man and merchandise.

The exceptional lifting capacity—5,000 lbs.—completely meets the needs of those lines of industry that haul heavy cased or packaged goods, household and shop appliances, machinery, etc., and must overcome varying load levels. The new Endgate can be applied to Trailers as well as trucks.

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provide highly efficient large scale and spot ventilation for practically any type of industrial building, regardless of its design or unusual characteristics. Adequate ventilation speeds production, reduces spoilage and accidents, helps you attract more manpower. Describe your problem; write for Bulletin 324.

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Controlled Air Circulation
EQUIPMENT FOR EFFECTIVE ECONOMICAL VENTILATION OF INDUSTRIAL BUILDINGS

## THE WEST ON ITS WAY

SAFEWAY BUYS SOAP COMPANY—Safeway Stores has purchased the Par Soap Company of Oakland. They will operate the soap firm as a separate corporation.

UNION OIL ACQUIRES NEW FIELDS — Leases and operations of the Palmer-Stendal Oil Company have been sold to Union Oil Company, and the Five-C interests have been sold to the Douglas Oil Company. The two deals involved approximately $1,000,000.

UNITED AIR LINES MAINTENANCE PLANT—United Air Lines has opened its $6,650,000 airplane maintenance base at San Francisco. The plant covers 116 acres at the north end of the municipal airport.

AIR-SEA TRAVEL—The United Air Lines and the Matson Navigation Company are issuing combination air-sea tickets between California and Honolulu to popularize one-way trips by air and steamer for the purpose of expediting tourist travel to the Islands.

MEAT PROCESSING PLANT—Kingan & Co., pork and beef packer, which opened headquarters in Indianapolis in 1845, has established a processing plant at 4820 Everett Ave., Los Angeles, in the Central Manufacturing District. R. I. Peters is local manager.

ACME BREWING CO.—2080 E. 49th St., Los Angeles, has announced plans to increase production by one-third when expansion is completed this spring. The two breweries which it operates will have a combined capacity of 2,000,000 barrels of beer annually.

IDEAL HEATING CORP.—807 E. Gage Ave., will shortly move to 7101 McKinley Ave., Los Angeles, where about 37,000 sq. ft. will be utilized in manufacture of floor, wall, and dual furnaces, and wall heaters.

KELITE PRODUCTS CO.—1350 N. Main St., Los Angeles, has moved to this location where 100,000 sq. ft. are utilized for manufacture of industrial cleaning compounds.

DAY & NIGHT MFG. CO.—Monrovia, is building a two-story addition to contain 22,000 sq. ft. for increased production of gas, water, and space heaters, butane cylinders, water coolers, and evaporators.

ARROWSMITH TOOL & DIE CO.—1240 S. Hill St., has begun construction of a 12,000-sq. ft. building at 9700 Bellanca Ave., Los Angeles, to which location it will move in a few months.

MACHINE CRAFT MFG. CO.—3805 Avalon Blvd., has constructed a porcelain enameling plant at 2214 Fawcett St., El Monte. This has been equipped with new machinery for porcelain enameling on castings. In its Los Angeles plant company makes malted milk mixers, and liquefiers under the trade-name of "Hollywood."

NEW INDUSTRIES, SOUTHERN CALIFORNIA—**Alhambra**: Mission Orange Bottling Co., 2300 Poplar Blvd., franchised by Mission Dry Corp., has started bottling operations; F. Z. Reitler, president. . . . **Burbank**: Supermatic Products Corp., 500 S. Flower St., has begun manufacture of apartment house ranges; Arnold L. Rose, president. . . . **Clearwater**: Production Manufacturing Co., 8329 E. Quebec St., is now steel fabricating; Walter A. Graham, owner. . . . **El Monte**: Stokes-Tucker, 1312 W. Rush St., is manufacturing novelty wood products and plaster castings; Ronald Stokes and J. A. Tucker, partners. S-N Manufacturing Co., 132 Hoyt Ave., is manufacturing garden tools and aluminum castings; Ernest O. Essen, owner. . . . **Inglewood**: Federal Fire Hose Manufacturing Co., 1044 W. Hillcrest Blvd., has started manufacture of fire hose; R. L. Pepp, owner. . . . **North Hollywood**: Vulco Manufacturing, 5430¼ Vineland Ave., is making brazing torches. . . . **Torrance**: National Electric Products Corp., Pittsburgh, Pa., has purchased 131,000 sq. ft. building at 2750 W. Lomita Blvd., and expects to start production of flexible electrical conduit, tubing, and electrical fittings in September. . . . **Whittier**: Martin Brothers Box Co., Toledo, Ohio, has acquired seven acres and a 25,000-sq. ft. building at 1329 W. Washington Blvd., and is manufacturing a wire-bound box under the trade name "Tenacity"; John C. Brill, manager.

PACIFIC AIRMOTIVE CORP.—2940 N. Hollywood Way, Burbank, has taken over Accessories Mfg. & Engr. Co., South Gate, and will operate it as the Ameco Div. of Pacific Airmotive Corp. at the Burbank address, making cabin pressure controls.

INTERSTATE ENGINEERING CORP.—2250 E. Imperial Highway, El Segundo, has been appointed national manufacturing and sales representative by Firestone Tire & Rubber Co. for airplane brake and wheel assemblies used on many small passenger and private airplanes.

NORTHROP AIRCRAFT, INC.—Hawthorne, has been awarded a contract of $5,500,000 by the U. S. Air Force for 23 three-engined assault transports.

KAISER CO., INC.—Fontana, has received permission from the Reconstruction Finance Corp. to expand its steel plant at a cost of $3,000,000. A new open hearth furnace with related soaking pit and other facilities are included. Operation is expected in six or eight months and will add 10,000 tons per year to the ingot production capacity.

CHERRY RIVET CO.—231 Winston St., Los Angeles, has leased an adjoining building which affords approximately 10,000 additional square feet for manufacture of rivets, rivet guns and accessories.

WILLCOCKS TINNING & METAL PRODUCTS, INC—5714 S. Main St., has begun construction of an 8,000-sq. ft. building at 220 E. 57th St., Los Angeles, where it will move upon completion. Company makes steam tables, kitchen work tables, cafeteria serving counters, ventilating units, etc., and does sheet metal work, hot dip retinning, coppersmithing, and welding.

HUFF LUMBER CO—116 W. 116th St., Los Angeles, is adding about 7,000 sq. ft. to its planing mill facilities.

W. B. ELFSTROM CO.—2300 E. 48th St., Los Angeles, manufacturer of washing machine parts, has acquired a 4,000-sq. ft. warehouse at 3430 Union Pacific Avenue.

DICKINSON POTTERY EQUIPMENT CO.—2424 Glover Pl., Los Angeles, has recently moved into its 4,000-sq. ft. building at this address. Company makes ceramic kilns and accessory machinery for the ceramic industry.

MACSON CO.—3260 Motor Ave., West Los Angeles, is now at this location for increased production of cable connectors.

SIMPSON'S POTTERY—11911 Industrial Ave., Hollydale, has added 3,000 sq. ft. for manufacture of plumbing fixtures.

JIFFY EXCAVATOR TOOL CO.—4864 Valley Blvd., Los Angeles, is at this new address where 4,000 sq. ft. of plant space and 1,500 sq. ft. of yard area are available for assembly of ditching and trenching machines, buckets, etc. Lawrence Massa is president.

JUTE PLANT FOR STOCKTON—Ludlow Manufacturing & Sales Co., Boston, Mass., will begin processing and storage of jute at Port of Stockton on August 1, employing 25 persons to convert jute from India into bagging for raw cotton grown in San Joaquin area.

ACQUIRES NORTHWEST PLANT—Paramount Mfg. Co., Stockton, has bought Muir Manufacturing Co., Sunnyside, Wash., naming Frank Flodin branch manager and Robert LeDoux, factory manager. Muir produces packing shed equipment and parts for potato and onion shippers.

SUPERWELD CORPORATION—Glendale, has been organized with capitalization of $500,000 to do atmosphere-controlled electric furnace brazing, and to make silver soldered steel and non-ferrous parts and assemblies, hand-trucks for warehouses and other wheeled goods. Walter T. Wells, chairman of the board of Lane-Wells Company, is president and general manager.

WESTERN SEALANT CO.—Culver City, has begun processing of metal pressure castings to prevent leakage. Gordon Knapman is owner.

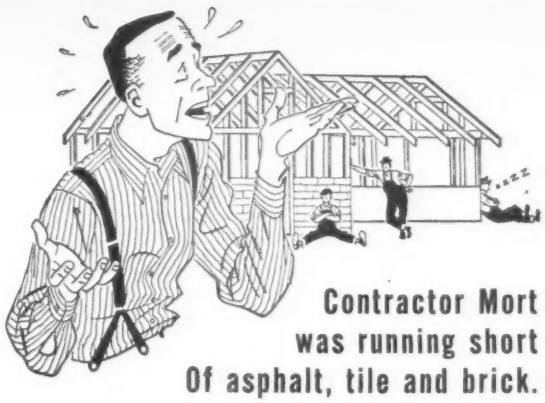
EVERSHARP, INC.—Pacific Coast distribution headquarters of this firm has been moved from San Francisco to 653 No. Robertson Blvd., Los Angeles, with Truman Renz as regional manager, pen division, and Lee Riggs regional manager, shaving instrument division.

BROWN-BEVIS EQUIPMENT CO.—Los Angeles, has purchased the Pomona plant of Salsbury Motors, Inc., and will manufacture mechanical street sweepers, motor scooters, 6 hp. gasoline engines for scooters, small tractors, etc. Pilot run of the plant was scheduled for July 1.

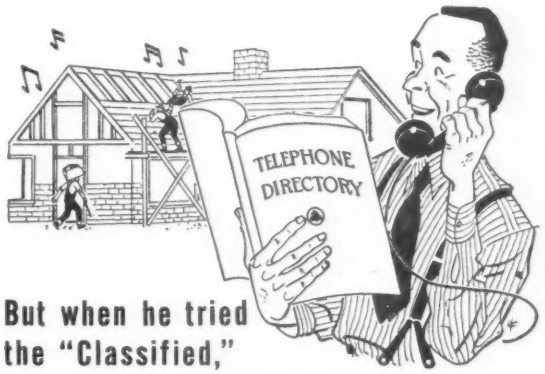
SARGENT ENGINEERING CORP.—Hunington Park, is adding 5,000 sq. ft. to increase manufacture of oilwell pumps, pumping equipment and aircraft hydraulic units.

MODGLIN COMPANY—3225 San Fernando Road, will construct an addition of 11,000 sq. ft. for expanded production of plastic items.

ELECTRONIC FIRM MOVES — R. A. Webster, 11856 Mississippi Ave., West Los Angeles, has moved to this address where increased space and considerable new equipment is available for production of gauges for measuring hardness of metals, and electronic devices.

Contractor Mort
was running short
Of asphalt, tile and brick.

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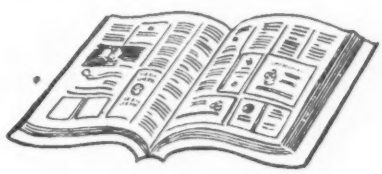
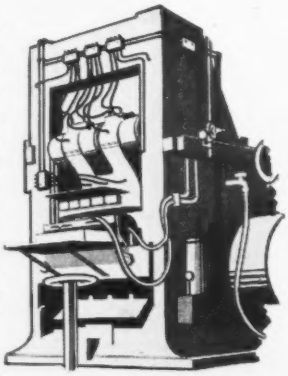


The Pacific Telephone and Telegraph Company

# Press-front life doubled, $45,500 saved on changes with Farval



FARVAL—*Studies in Centralized Lubrication No. 99*

RAPID wear of bearings was forcing a brick company to overhaul its brick presses every few months. It was costing about $1,750 to replace each press front, including upper and lower toggles and slides. In some plants where pressures were extreme and highly abrasive brick dust was encountered, fronts had to be replaced every 90 days.

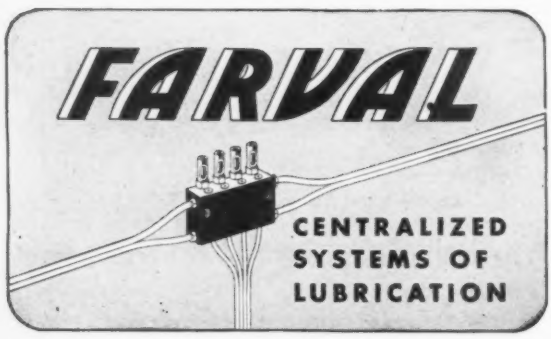
In order to eliminate downtime, lengthen bearing life and reduce overhaul expense, the company decided to try an automatic Farval Centralized System of Lubrication. The first installation on one press resulted in a saving of $900 in ten months on the cost of brasses alone. Farval systems have since been installed on a total of 26 presses.

Even in plants where conditions are most severe, bearing life has been doubled. In one plant, it has not been necessary to replace any bearings for more than 18 months since Farval was installed. As to expense, the company is saving at least $45,500 a year—the cost of one complete overhaul of its 26 presses.

The company also remarks on the safety and cleanliness of Farval Centralized Lubrication. There is no longer an accident hazard—always present when operators lubricate equipment by hand—and no oil is spilled on presses and floor.

Farval delivers oil or grease under pressure to a group of bearings from one central station, in exact quantities, as often as desired. Farval is the Dualine System with the Positive Piston Displacement Valve. This valve has but two moving parts and is fully adjustable, with a Tell-tale indicator at each bearing to show the job is done. For a full description of Farval, write for Bulletin 25. The Farval Corp., 3269 East 80th St., Cleveland 4, Ohio.

*Western Offices: Seattle, San Francisco, Los Angeles*





## THE WEST ON ITS WAY

ANDREW BROWN COMPANY—5431 District Blvd., Los Angeles, has completed a 15,000-sq. ft. warehouse to handle stocks of paints, varnishes, lacquers, synthetic enamels and similar products which the firm makes.

MARKING FIRM MOVES—Monarch Marking System Co. has acquired a 21,000-sq. ft. building at 2010 W. 62nd St., Los Angeles, and will move there about September 15. Company is a branch of the Dayton, Ohio, firm making price tickets, tags, and labels, as well as price marking machinery.

AUTOWELD CORPORATION—El Monte, a subsidiary of American Metal Products, Detroit, has under construction a 12,500-sq. ft. building at 852 W. Whittier Blvd., Whittier, for production of automobile parts. Company manufactures butane tanks and equipment at the El Monte plant.

**• Amino products plant of International Minerals & Chemical Corporation at San Jose, California.**

DROP & PRESS FORGINGS—Scheduled for completion this fall, General Metals Corp. is building a $1,000,000 addition adjacent to their present location at 5701 So. Boyle Ave., Los Angeles. The new plant will be capable of an output of 400 to 500 tons of malleable iron castings monthly, as well as drop and press forgings.

PABST BREWING CO.—Milwaukee, has purchased the Los Angeles Brewing Company, which will be operated as a separate entity by the eastern firm, with Charles J. Lick remaining as vice-president and general manager. An expansion program costing $4,500,000 is planned for the Los Angeles brewery.

MAINTENANCE SHOPS—Western Air Lines, Los Angeles Municipal Airport, plans erection of $100,000 engine overhaul and maintenance shops.

NEW OIL FIELD—A new light oil producing area in California has been discovered with the bringing in of Russell No. 1 by the Richfield Oil Corp. in the Cuyama Valley, near Santa Maria. The valley has heretofore been unexplored for oil, and Richfield holds approximately 130,000 acres under lease. Oil from the new well flowed at the rate of 500 barrels daily, from a producing interval between 2,970 and 3,360 feet deep. A second well, Russell No. 2, has been spudden 600 feet west of the discovery well.

NATURAL GAS—Application has been made by the El Paso Natural Gas Co. to the Federal Power Commission to allow expansion of its pipeline system by 180,000,000 cu. ft., of which 100,000,000 cu. ft. of natural gas would be delivered to the Southern California Gas Co., the balance going to Arfizona, New Mexico, and the El Paso area.

AUTO ASSEMBLY PLANT—Tucker Corporation, makers of the new rear-engined automobile, plan to erect an assembly plant in Los Angeles within the next two years, according to President P. T. Tucker. Present production of the car is about 2½ cars per day, expected soon to increase to 10 daily.

NEW ENGINES ORDERED—Southern Pacific Company has arranged for bids on diesel-electric freight locomotives to cost approximately $25,000,000, according to President A. T. Mercier. The orders will include 30 new 6,000 hp. mainline freight locomotives and 65 diesel switch engines.

## COLORADO

AGRICULTURE AND INDUSTRY—The Oliver Manufacturing Company has moved from St. Louis to Rocky Ford. As manufacturers of seed and grain cleaning machinery, the company moved to Southern Colorado because the area is the center of a large seed growing industry.

EXPANSION IN CRIPPLE CREEK—The Golden Cycle mill will move from Colorado Springs to Cripple Creek.

CENTRAL CONTROLS BRANCH—General Controls have opened a new and enlarged Denver factory branch office at 1162 Elati Street, Denver. M. S. Wilson is branch manager.

## IDAHO

SMELTER TO BE BUILT AT STIBNITE—Bradley Mining Company, San Francisco, will construct a smelter at Stibnite for reduction of the antimony and gold concentrates produced from the company's Yellow Pine mine. The smelter will cost approximately $1,000,000. It will be built by Western-Knapp Engineering Company. The smelter is expected to have annual production of 5,000 to 6,000 tons of antimony.

SHOP TO BE REBUILT—The Ohio Match Company is planning a new structure to replace a shop lost in an $80,000 blaze in the Coeur d'Alene national forest.

CEDAR POLE PRODUCTS—The R. G. Haley organization, Lewiston, has filed articles of incorporation at Boise with a capitalization of $87,500. It will deal in cedar pole products in Canada, the West Coast, and the Inland Empire. Haley siding, near Pierce, is being used as a shipping point from Idaho.

DEWEY GOLD MINE SOLD—Barnsdall Oil Company has sold its rights in the Dewey gold mine, located in the Idaho primitive area, to Gateway Gold & Copper Company, a Canadian concern recently incorporated in Idaho. This historic mine has been operated sporadically since 1896.

BIG HORN MINING CLAIMS LEASED—The Progressive Mining Co., recently organized by business men of Idaho Falls, has leased, with the option to purchase, the Big Horn mining claims in the Hamilton mining district of Butte County.

## MONTANA

POWER COMPANY TO BUILD—Montana Power Company plans to construct a $250,000 gas processing plant, compressing units, and considerable mileage of new pipe lines in its Cut Bank fields.

HAND WEAVING PROJECT—Miles City will be the location of the first hand-weaving project under the new state-sponsored plan of creating interest in Montana's wool products.

WOOD PULP MILL AT POLSON—Idaho-Montana plans to erect and operate a bleached sulphate wood pulp mill of 200-ton daily capacity at Polson.

SOAP CREEK FIELD IS DEVELOPED—Spokane's Inland Empire Refineries, Inc., is developing a new source of crude oil in the Soap Creek field in southern Montana. Estimates of the amount of crude oil reserves in the field vary from 6,000,000 barrels to 17,000,000 barrels. Although discovered in 1920, this area has been shut down since 1928 except for short test periods.

ANACONDA ACID PLANT EXPANSION—The capacity of the sulphuric acid plant and other facilities at Anaconda are being expanded to double the production of phosphate products to meet the demand for phosphate fertilizer. This expansion is in addition to the "Greater Butte project," where preliminary work has started on a program estimated to cost $20,000,000.

MILL REOPENS AT HALF MOON—The Stoltze Land & Lumber Company's Half Moon mill, Columbia Falls, has opened, and 75 men have gone back to work. As soon as road conditions permit, the woods crews will go into the forests for cutting.

Quick-set workholder — fully enclosed gear.

New RIDGID No. 4P

● Now you can have a 2½" to 4" geared threader you can handle with unusual ease — carry it, put it on pipe; it's got handles you can get hold of and control it with. That's only one of the many RIDGID features of this new 4P die stock that you'll enjoy.

***Balanced Loop-handles.*** Easy to pick up and put straight on pipe — won't slip or tip over. Easy to carry. . . .

***Quick-setting Workholder.*** Mistake-proof — sets to size *before* you put it on pipe, no bushings. . . .

***Extra Easy Upkeep.*** Twin-anchored drive shaft turns in oilless bronze bearing — never needs oil. Grease packed gear fully enclosed. . . .

***Easy Pipe Threading.*** Four sets of 5 high-speed steel dies easily cut clean accurate threads. Ratchet handle with each 4P; RIDGID universal drive shaft available for power drive.

Make sure of these easier-work advantages — buy the 4P at your Supply House.

RIDGID
WORK-SAVER PIPE TOOLS
THE RIDGE TOOL COMPANY • ELYRIA, OHIO

Ross Metal Lithograph Oven
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Makers of Metal Products know the modern way to SMOOTHER, SPEEDIER FINISHING

Automobiles, Business Machines, Household Appliances, Cans, Toys and the many other types of products made of metal exert their appeal largely through their surface finish. How to make that finish attractive and lasting is one major production problem. How to apply such a finish faster for greater output is another problem.

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**Write to our office nearest you for your copy of our Bulletin No. 132W — a 24 page book that treats the entire subject of industrial baking, curing and heat treating. Fully illustrated, charts, diagrams and helpful data.**

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## THE WEST ON ITS WAY

TIMBER CUTTING INCREASES—Approximately 10,000,000 board feet of timber a year will be shipped to Wisconsin pulp mills from the White Sulphur Springs area during the next three years. This figure, according to forest service officials, represents an increase of timber cutting activity to almost four times the amount cut during the last two years. All timber will be taken from Lewis and Clark forest land. Contracts have been signed with the Corcoran Pulp Wood Company of Wisconsin, with headquarters for Montana operations in Bozeman.

## OREGON

KLAMATH FALLS FIRM TO BE SOLD—Pacific Associates, Inc., a California corporation, has taken an option on the Klamath Machine and Locomotive Works, Klamath Falls; Eugene Hooker and Homer Ellis will dispose of their interest in the company, but the Gerlinger family of Dallas will have an interest in the new corporation to be formed.

LUMBER COMPANY TO MOVE—Coosten Lumber Company will move its mill from Willanch slough to the Graveyard Point area, across from Eastside. A dam for a millpond will be constructed and about 1½ miles of road.

SMALL MILL PRODUCTION—White City Lumber Company, Medford, has begun enterprise of its Camp White industrial area with the activation of dry kilns, green chain and resaw units. The intention is to provide a concentration area through which small mill production can be remanufactured, dried, surfaced and graded for use by woodworking industries to be located at the site.

O & C TRACTS OPEN TO ENTRY—A bill signed by President Truman reopens the Oregon and California revested lands to mining entry. According to Hillman Lueddemann, president of the Portland Chamber of Commerce, this action removes the principal barrier to the growth of the mineral and mining industry in western Oregon.

FEDERAL RESERVE SPENDS TWO MILLION—Bids will be called for late this year for construction of a four-story building to house the Portland branch of the Federal Reserve Bank of San Francisco, according to S. A. MacEachron, assistant branch manager. The structure will have a basement and sub-basement with two-story vaults, and main banking rooms 50 by 80 feet on the first floor. Location of the new bank building will be S.W. Ninth Avenue and Stark Street. Pietro Belluschi is the architect.

LUMBER MILL PLANNED—Lloyd Corporation, Los Angeles, will build a sawmill and plywood plant costing $1,500,000 near the mouth of the Rogue River in southern Oregon, according to R. B. Lloyd, president. Construction date will depend on harbor improvement at the river's mouth. Lloyd Corp. owns 25,000 acres of timber in the area.

GRAIN ELEVATORS PLANNED—Kerr-Gifford Co., Portland, will build a $250,000 grain elevator at the Port of Arlington. Construction will be privately financed and operated, since voters twice rejected a $200,000 bond issue to pay for the project.

HOWARD-COOPER IN NEW HOME—Their new $500,000 building on a five-acre site has been occupied by the Howard-Cooper Corp., pioneer Portland equipment dealers and manufacturers. The company serves the logging and construction industries with branches in five Oregon cities and Seattle.

SALEM TO HAVE NEW TELEPHONE BUILDING—Pacific Telephone & Telegraph Company plans to build a $150,000 administration building in Salem, to be located in the vicinity of the state capitol.

PACIFIC POWER AND LIGHT EXPANDS—The Pacific Power & Light Company plans to spend $6,666,350 on a construction program in the Portland area. The largest single job will be the enlarging and conversion of oil firing of the giant boiler at the Lincoln generating plant, the cost to be approximately $300,000.

PLYWOOD FIRM ACTIVITIES—U. S. Plywood Corporation will build its twenty-eighth branch warehouse at Portland, to serve the lower Columbia River, upstate Oregon area, and most of Idaho. . . . A $1,000,000 plywood plant is planned for Grants Pass by J. J. Villair, Samuel J. Miller—both of Cave Junction, and John Nyland of Grants Pass, who are incorporating as the Southern Oregon Plywood, Inc., of Grants Pass. . . . The Portland Plywood Corporation has started building of its new mill at an estimated cost of $900,000 and employing 160 people, with a production of 36,000,000 ft. of plywood per year.

PONDEROSA MOULDINGS TO EXPAND — A major expansion project to double the output and increase the number of workers is under way at Ponderosa Mouldings, Inc., Redmond. The construction program includes a planing plant, dry kilns, a large dry sorting chain building and extensive development of yard facilities for green lumber.

NEW BRANCH AT ROSEBURG—The St. Helens Wood Products Company, manufacturers of broom and mop handles, will open a branch plant in Roseburg. The company has purchased an unused cannery building, and machinery is now being installed.

MILL AND TIMBER TRANSACTIONS—Coos Bay Logging Company of North Bend has purchased the Powers Mill Company and 25,000,000 ft. of standing timber; Archie Heseman has bought the Emmert Bros'. Logging Company of Sweet Home and the Emmert Bros'. interests in the C. & M. Lumber Company sawmill near Lebanon; the O'Brien Spruce Company has been sold to the Astoria Spruce Corporation, a recently incorporated Washington firm; the Leonard Lungren Logging Company has received the timber rights to 187,000 ft. of Ponderosa pine along the roadside of the Deschutes National Forest land and U. S. Highway 97 in the Lava Butte sector; Ewauna Box Company of Klamath Falls has been awarded a contract for 10,000,000 ft. of Ponderosa pine and sugar pine on Kanott No. 6 unit on the Klamath reservation on a bid of $250,000.

## UTAH

PIPE FOUNDRY EXPANDS—Pacific States Cast Iron Pipe Co. is adding 110,000 sq. ft. to its foundry at Provo at a cost of $2,500,000. Centrifugal casting equipment will replace present sand-casting methods. Pig iron will be obtained from the Geneva Steel Company.

INDUSTRIAL AREA PLANNED — Purchase of the Utah General Sub-Depot, Salt Lake City, by John Wallace and Associates, will open 950 acres of former government property to manufacturing plants. The deal, recently concluded with War Assets Administration, at a price of $1,620,000, will make available 61 buildings of various sizes, electrical, telephone and fire alarm systems, railroad trackage and other improvements. Sale was subject to provision that the property may be reconverted to its designed use within 120 days.

STEEL PIPE PLANT—Structural Steel and Forge Company, a division of Eimco Corporation, will construct a $1,000,000 steel pipe manufacturing plant in Salt Lake City. It will be built in association with L. J. Berkeley, owner and president of Penn Tool and Machine Company, Danville, Illinois. About 150 men will be employed at the plant.

REMINGTON ARMS PLANT SOLD—The Remington Arms Plant in Salt Lake City has been sold to three business men for $1,620,000. The successful bidders are John M. Wallace, vice-president, Walker Bank & Trust Company; Harold H. Bennett, vice-president, ZCMI, and Leland Swaner.

RUBBER FACTORY OPENS — Public ceremonies attracted visitors from all parts of the state for the opening of the Thermoid Company's $2,500,000 plant at Nephi. The factory is two stories high and covers 5½ acres.

INDUSTRIAL SURVEY—Further industrialization of Utah will be the aim of a survey planned by the Utah Association of Chamber of Commerce Secretaries and the Bureau of Economic and Business Research of the University of Utah. Six graduate students directed by Dr. ElRoy Nelson will devote three months on the survey and making their report.

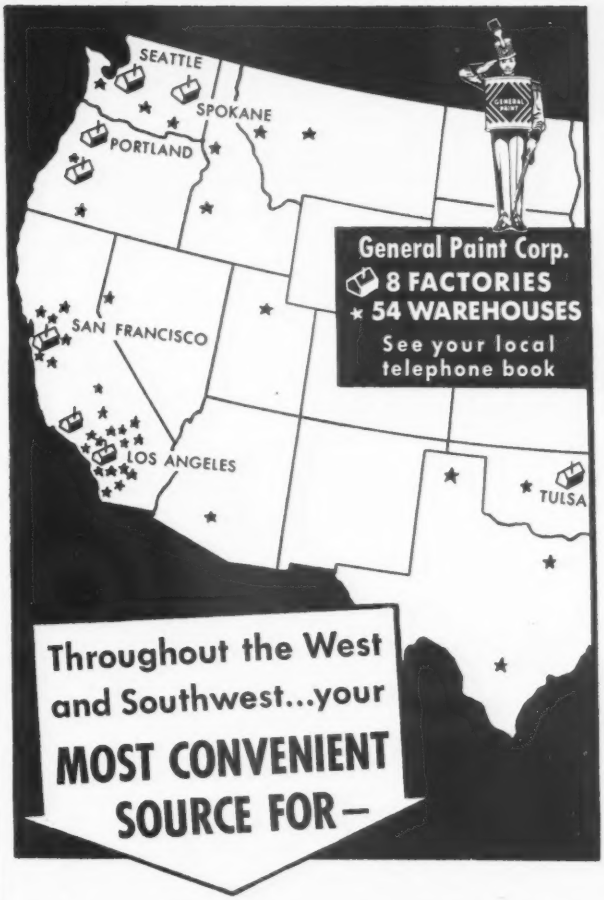
GAS WELL BROUGHT IN—The Western Natural Gas Company has brought in a gas well in San Juan County with a daily capacity of 25,000,000 cu. ft. The well, north of the Arizona line, will be connected to Needles, Calif., by pipeline and will provide additional supplies for southern California outlets of the Pacific Gas & Electric Co.

WASATCH OIL PLANS WELL—C. E. Peavy, vice-president of the Wasatch Oil Co., has announced that his company plans to sink 52 new wells at a cost of $2,500,000 during the rest of 1948. Expected production is 144,000 barrels.

ASPHALT MILL OPENED—With a production capacity of 60 tons per hour, a new asphalt plant has been opened by the Salt Lake City Corporation, for use in street repairs. The plant was built by Standard Steel Corp. at a cost of $50,000.

## WASHINGTON

CHEMICAL PLANT EXPANDS—An addition costing $4,000,000 will be built in the near future by Monsanto Chemical Co., Seattle, according to E. M. Queeny, chairman of the board.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## THE WEST ON ITS WAY

FIRM CHANGES NAME—The Georgia Hardwood Lumber Company, which recently bought majority control of Washington Veneer Company, Olympia, has changed its name to the Georgia-Pacific Plywood & Lumber Company.

NORTHWEST EQUIPMENT MOVES—New offices and show rooms at 2307 Fifth Ave., Seattle, have been opened by Northwest Equipment Co. The Harvey F. Swenson Co., an affiliate, is also occupying the new quarters.

LEAD AND ZINC FIRM BUILDS—Construction of a new plant on Harbor Island, Seattle, is under way. The building will serve as headquarters for the newly formed Associated Lead & Zinc Company, organized by the Eagle Picher Company and the Northwest Lead Company, Seattle.

FLOUR COMPANY TO REBUILD—The Centennial Flouring Mills will reconstruct the Tacoma plant. Storage space will be four times larger than the previous capacity.

CHROME INDUSTRY—American Chrome and Magnesium Industries, Inc., has been granted a contract by the treasury for 200,000 tons of chrome to be stockpiled by the government; the company proposes to construct a crushing and concentration plant near Hamilton at a cost of $1,000,000.

MILK PLANT ADDITION—Contract for a second unit to the Arden Farms plant, 512-20 West Heron Street, Aberdeen, has been awarded to Ed Lundgren, Aberdeen contractor. This second unit will complete a $125,000 expansion program.

MONTESANO MILL UNDER WAY—A mill building and adjacent auxiliary structures are being constructed on a portion of the 16 acres of the old Hartung mill site on the Chehalis River. This land has been leased by the city of Montesano to E. W. Picco for a lumber mill operation.

NEW PLANT IN WALLA WALLA—The Pacific Guano Company will build a plant in Walla Walla for the production of all types of insecticide and fungicide dusts.

PACKER PLANS BERRY CANNERY—A berry processing plant is proposed for the newly-organized Lynden Berry Growers, Inc., to be located in Lynden.


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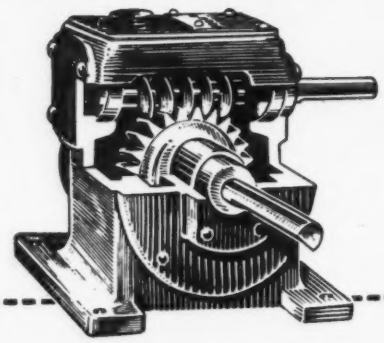

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NEW METHOD TO CURE FISH—Eight new-type smokehouses, developed by the State Department of Fisheries, are in operation in fish processing plants in Washington. They are equipped with electric motors.

PREMIX TO BUILD AT KENNEWICK—Premix Concrete Company, subsidiary of a Spokane concrete company, will build a $100,000 plant in Kennewick.

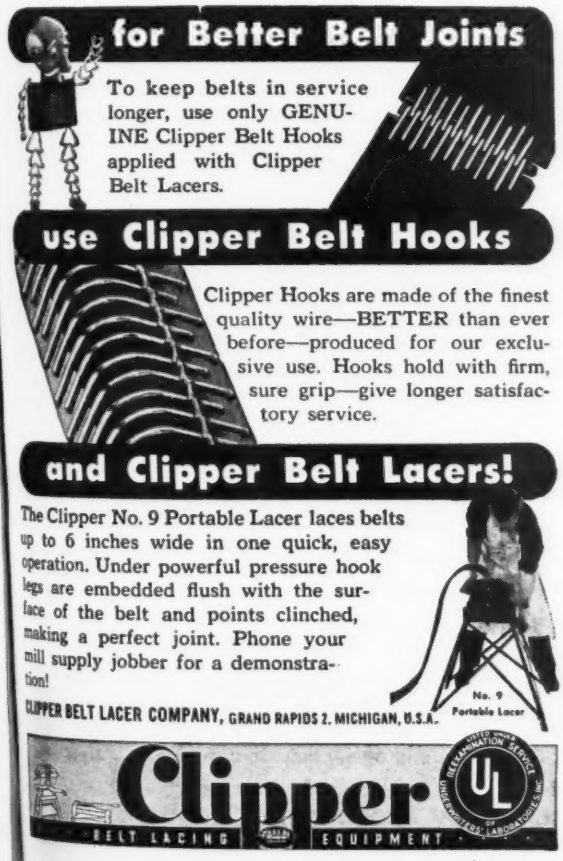
MILL CONSTRUCTION PLANNED—Red River Mines, Inc., formed to operate a hydroelectric plant on the Red River, will construct a mill to work ore from the old Brown Bear claims and do custom milling. The corporation is planning to install $65,000 worth of equipment in a new water plant, ball mill, ore separation process and development of the mining claims. David Schultz is president.

SEATTLE COMPANY SELLS CANNERY—The Hood Bay Salmon Company of Seattle has sold its cannery, trap sites, floating property to the Angoon Community Association of Angoon, Alaska. The cannery was purchased for the Indian community, organized as a cooperative, through $275,000 advanced by the United States government.

COWLITZ COUNTY PROPERTY SOLD—The Puget Sound Power and Light Company has sold properties in Cowlitz county to the Cowlitz public utility district for $1,891,724. The properties involved include the Kalama River hydroelectric generation plant, a transmission line running 15.1 miles from Kalama River to Kelso; a high voltage distribution line from Kelso north to the Cowlitz-Lewis county boundary, and substations on the Kalama River, at Castle Rock, Kelso, Ostrander and at the Weyerhaeuser Timber Company plant in Longview.

SALMON CANNERY PURCHASED—A. W. Brindle of Seattle, president of the Wards Cove Packing Company, and his brother ,H. A. Brindle, have purchased the Red Salmon Canning Company, which operates a plant on the Naknek River, Alaska. Also included are processing facilities at Aberdeen, a trading store at Naknek, and Frank B. Peterson Company, sales agent for Red Salmon.

PLYWOOD FIRMS EXPAND—The M. & M. Woodworking Company, operating plywood mills in Oregon and Washington, will expand into California for redwood processing. They also plan to buy stands of fir timber in Oregon. . . . Construction work on the Chelatchie Prairie plant project of the Harbor Plywood Corporation in the upper Lewis River district will continue despite the fact that fixed price bids are not available. A townsite is also proposed in this area.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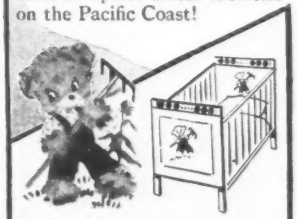

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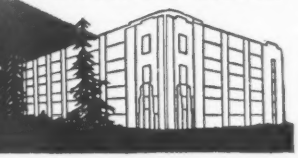

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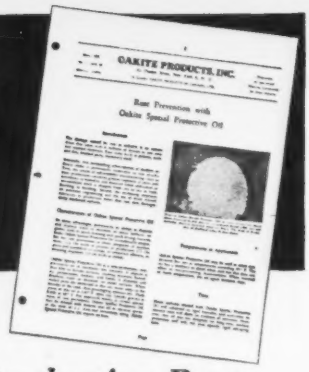


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## THE WEST ON ITS WAY

LONG-BELL BUYS TWO SAWMILLS — The Long-Bell Lumber Company has purchased two sawmills and extensive timber holdings of the Gardiner Lumber Company of Gardiner, Oregon. The purchase represents an investment of more than $5,000,000.

TACOMA PHONE COMPANY EXPANDS—Construction work has started on a four-story addition to the Pacific Telephone & Telegraph Company's main telephone building in Tacoma, which is estimated at $838,000. The enlarged quarters will be used for the Tacoma terminus of the new coaxial cable which will connect Washington with the south and east.

ALASKA AIRLINES TO BUILD—A contract for a large hangar to be constructed within the next four months and 10 existing buildings on or near Paine Field has been signed by Alaska Airlines. The airlines will have a three-year lease with two five-year renewal option periods, and will have a plane maintenance base for its fleet.

LONG-BELL BUYS LUMBER COMPANIES — Long-Bell Lumber Company, Longview, has purchased the Washington Lumber Company in Olympia, Quincy, and the State Lumber Company in Renton. The two companies were owned by O. A. Wallmark and Walter Mix.

NEW OLYMPIA MANUFACTURER—Conner & Company will start operations soon in a waterfront plant at Olympia. They will manufacture truck beds and bodies of all types.

LUMBER MILL AT CHEWELAH—A new lumber mill with a capacity of 10,000 ft. per day will go into operation shortly at Chewelah. It will be operated by Stephen S. Ross and his son Paul.

LOCOMOTIVES TO HAVE RADIOS—The Northern Pacific Railway is equipping main-line freight trains—running between Auburn and Yakima—with radio units in locomotives and cabooses to facilitate operation over the 139-mile mountain subdivision.

RAILROAD CONSTRUCTION PROGRAM — The Chicago, Milwaukee, St. Paul & Pacific Railroad will manufacture 300 logging flat cars in Tacoma. The construction program will take a year, and the present car repair crew of 242 men will be increased by about 22.


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CHEMICAL PLANT PURCHASED — Industrial Enterprises, Inc., Seattle, has bought the Washington Chemical & Salt Co.'s sodium-sulphate plant at Monse, Wash. Modernization of the plant and expansion of production facilities is planned by Industrial Enterprises, after which they will market a refined product for use in the detergent-soap industry. Commercial sodium-sulphate deposits in the Okanogan area have been acquired by the company, and will be mined by them under lease from C. A. Kearny, Oroville. It is expected that preliminary production of anhydrous sodium-sulphate will be about 50 tons daily. According to H. F. Smith, president, investigation is being made of the possibility of moving the plant to the Okanogan-Omak area.

MEDICAL PLANT TO OPEN—Walla Walla will be the site of a newly organized concern, The Amberin Company, which will manufacture and distribute five new medical products, only one of which, amberin, is now on the market. A plant employing 80 persons is contemplated, according to B. A. Brownlow, president.

NEW SHIPPING SERVICE—Services to the Orient, including the Philippines, Java, Straits Settlements, India and the Persian Gulf are available to shippers in Seattle and Portland, following expansion of operations by the Transpacific Transportation Co. The line is agent for Java Pacific Lines, and uses C-3 and Victory ships as well as some pre-war models.

TOLL BRIDGE PAYS OFF—Increased revenue due to diversion of traffic because of the flood closure of the Portland-Vancouver, Washington bridge, has raised daily income on the Longview state-owned bridge from $500 to about $4,000. It has been used as an alternate by British Columbia and western Washington traffic wishing to cross the Columbia into Oregon. The first five days of June brought heavier revenues to the bridge than is usual for a normal month.

PRODUCTION INCREASE PLANNED—Reynolds Metals Company planned to open their third pot-line about July 1 at Longview, officials of the company report. The line will employ 75 to 100 men when in operation. The plant was reopened a few months ago after having been closed for a year.

AIRCRAFT PROGRAM—Boeing Aircraft at Seattle will share with three California companies the major part of contracts placed by the government under the 70-group Air Force plan. A total of 1,573 planes will be built by West Coast manufacturers out of 2,201 ordered for military use.

## WYOMING

CARTER OIL TO OPEN OFFICE—Carter Oil Company will establish a permanent district office in Buffalo, to serve as a base of operations for oil exploration work in the Powder River basin. H. R. Sharkey, acting district geologist, will be in charge.

REFINERY DOUBLES CAPACITY—Practically all phases of a program of general expansion, improvement and rehabilitation are under way at the Casper refinery of the Socony-Vacuum Oil Co., Ltd. When completed in December, the refinery's current 3,000-barrel-per-day capacity will be doubled. The Catalytic Construction Co., Philadelphia, is general contractor.

HEAVIEST OIL RIG USED—Monster drilling equipment, said to be the largest in the world, will be installed soon at a site 25 miles east of Farson. Capable of drilling a hole 20,000 feet deep, the rig was purchased by the Superior Oil Company of California from the National Supply Company. It is one-third larger than the one used by Pure Oil Company on their 14,309-foot Poison Spider well, considered the deepest producer in the world.


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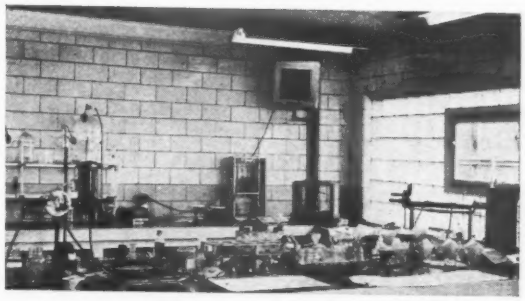

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# WESTERN TRADE WINDS

## NEWS ABOUT THOSE WHO DISTRIBUTE AND SELL INDUSTRIAL EQUIPMENT AND MATERIALS

**J. W. Minder Chain & Gear Co.**, Portland division, has moved to new and larger quarters at 307 S.E. Hawthorne Blvd. Shop facilities as well as merchandise have been moved to the new location.

**M. W. Jorgenson** has been appointed sales manager of Fruehauf Trailer Company's Los Angeles branch.

**Maas & Waldstein Company**, Newark, N. J., has announced that its Pacific Coast division, formerly known as the Smith-Davis Paint Company, has changed its name to **Smith-Davis Company. Dr. K. J. Keating** has been named manager, and **Murray M. Win** has been added to the sales force.

**Elliott A. Allen** is the representative of Precision Casting Sales and Engineering in the eleven Western states. His headquarters are at 1913 North Vermont Avenue, Los Angeles.

**The California Electric Works**, San Diego, have been named dealers for the Allis-Chalmers line.

**Haskel Engineering & Supply Company**, Glendale, California, has been appointed distributor for The Parker Appliance Company, Cleveland and Los Angeles.

The Los Angeles district office of **Globe Steel Tubes Company** has moved from 328 A. G. Bartlett Building to 400-401 Security Building, Glendale.

**Architectural Porcelain Constructors**, Oakland, Calif., is one of the new member companies of the Porcelain Enamel Institute.

**William F. (Bill) Gulley** has been named sales engineer for the Pacific Coast district of the Pittsburgh Equitable Meter Division and the Nordstrom Valve Division, Rockwell Manufacturing Company. His headquarters will be in Los Angeles.

**Allen A. Olson** has been appointed Pacific district representative for General Electric wire and cable in San Francisco.

**F. Lowell Garrison** has been named radio sales manager for the San Francisco district of the General Electric Supply Corporation.

**The Lamson Corporation** of Syracuse, New York, will be the exclusive representatives for sales, service, and engineering application of the newly developed automatic pallet loader manufactured by **Production Aids, Inc.**, Van Nuys, California.

**Edmund Ducommun**, president of Ducommun Metals & Supply Company, Los Angeles, was recently honored at an "Old Timers" party held for representatives of firms that have been in business in Los Angeles 50 years or more. The Ducommun firm was founded in 1848. The party was in celebration of the golden anniversary of Weber Showcase & Fixture Company.

**W. D. James**, recently of Northrop Aircraft, has been added to the plastics sales personnel of Wilson & George Meyer & Company, Los Angeles.

**Durez Plastics & Chemicals, Inc.**, North Tonawanda, New York, will sell its phenolic molding compounds on the West Coast direct to the user, instead of using the services of C. D. La Moree of Los Angeles. **Evan E. Graham** is the sales engineer assigned to the Los Angeles region.


Spider Staging

**NOW! Safe *Horizontal* Travel Too On Those High Work Jobs!**

***New power-driven Spider Staging speeds work, cuts costs, increases safety in ALL off-the-ground work!***

IT'S AMAZING — the "impossible" kind of jobs you can do with the sensational new power-driven Spider Staging! In "hard-to-rig" bridge work, for example, this one-man operated staging can not only ascend and descend a drop of up to 650 feet, but it can easily *travel horizontally* around obstructions by use of a simple transfer chain. It moves quickly on I-beams by special roller attachment, then adjusts working level in seconds, for speedier work. Cuts man-hours ⅔ on jobs like towers, tanks, stacks, bridges, buildings, etc., say users! Don't take our word for it — let us SHOW you by actual demonstration and certified job records what you can do with Spider Staging! Write TODAY for literature and demonstration!

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**Robert B. Black** has been appointed district manager in charge of Oregon and northern California for Reichhold Chemicals, Inc. His headquarters will be in the Henry Building, Portland.

**Jack A. Tallman, Jr.,** of Owens-Corning Fiberglas Corporation, transfers from Seattle to Portland. **Eugene Howisey** has been appointed to take over the Seattle sales work.

**Victor Walberg** has joined the Coulter Steel & Forge Company, Emeryville, as a sales engineer. He was formerly with Pacific Metals Co.

**James M. Cloney** has been named Western manager for Antara product division of General Aniline & Film Corporation, Oakland.

**A. H. Gibson** has been named appliance sales manager, General Electric Supply Corporation, for Spokane and Inland Empire.

**Sterling Tool Products Company,** Chicago, has established a sales office and service depot at 405 West Washington Street, Los Angeles. **I. C. Bouchard** is in charge.

**Charles P. Hunt** will take charge of the sale of aircraft tubing for Baker Steel & Tube Company, Los Angeles. He was formerly on the sales force of Reynolds Metal Company.

**John D. Fenstermacher** has retired temporarily from his position as sales executive for Columbia Steel Company, San Francisco.

**Edward D. Maltby Company** has opened a branch office at 1421 B Street, San Diego. It is under the management of **E. H. Beste.**

**R. N. Van Der Vert** succeeds **George S. Brett** as manager of sales in Seattle for A. M. Castle & Company, Chicago.

**James W. Lafferty** has been appointed to the position of technical sales engineer for the Ira G. Perin Company, Los Angeles.

**Alfred C. Beachlin** has been appointed exclusive representative in Phoenix, Arizona, for the Illinois Testing Laboratories, Inc.

**Reed Smoot,** Salt Lake City, has been named district sales manager of the U. & I. Sugar Company. His territory includes eastern Washington, northern Idaho, eastern Oregon, and western Montana.

**P. M. Jackson** will be the manager of the new Spokane branch office of Pitney-Bowes, Inc.

**Wirt Farley, Jr.,** has been named manager of San Francisco office of Vapor Heating Corporation, succeeding **A. P. Stikkers,** transferred to Los Angeles as district engineer.

**Robert W. Hubner** has been appointed electric accounting machine manager of the Seattle branch of International Business Machines Corporation. He previously held a similar position in Spokane.

**G. E. Waverly,** Portland, has been named assistant to the sales manager of Tidewater Associated Oil Company in the Oregon district, succeeding **A. G. Carpenter,** transferred to San Francisco.

**J. A. Edington,** West Coast district manager of Booth Fisheries Corporation, has been transferred to Chicago where he will have the position of general sales manager. **C. W. Appel** succeeds him as manager of West Coast production and sales in Seattle.


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**CARBON MONOXIDE TESTER**

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## TRADE WINDS

**R. R. McEntyre,** Portland, has been appointed manager of the new Portland terminal sales district of General Petroleum Corporation. . . . **Jack A. Simpson,** branch manager in various Washington cities, has been named Seattle district manager, and **Walter N. Davis,** manager dealer sales for the Washington division, has been appointed assistant division retail manager.

**H. T. Allison** appointed sales representative for Permanente Products Company at the new sales branch at Swan Island, Portland.

**E. Van Fleet,** formerly with Super-Cold Corporation, named head of retail sales organization for Silver-Stahl Corporation, distributors in northern California. **William Stafford,** formerly with Weber Show Case & Fixture Company, has been named wholesale sales manager for outside territory.

Thomas L. Dowling

**Thomas Lawrence Dowling** appointed district sales manager in southern California for W. P. Fuller & Co., succeeding the late **M. G. McKinlay.** He was formerly in charge of Fuller's Stockton branch.

**Harold E. Webb** has been named sales manager of technical products for Pacific Airmotive Corporation, Burbank.

**The Dawson Machinery Company** has moved to new quarters at 5700 First Avenue, South, Seattle.

**Clarence E. Hale,** sales promotion and advertising manager of Golden State Company, San Francisco, has been appointed general sales promotion manager.

**The Universal Carloading & Distributing Company** has opened offices in the Northern Pacific freight depot in Yakima. **James L. Gonderman** is the director; his assistant is **Keith Kelly.**

**Northwest Tube & Metal Fabricating Company,** Portland, has acquired the exclusive license for manufacturing and sales rights of the Armstrong heat control system, manufactured by the Armstrong Control Company, Inc.

**David M. Salsbury,** Salt Lake City, has been elected president of Westinghouse Electric Supply Company. He was formerly executive vice-president.

**Dale Johnson,** Salt Lake City, has been named regional manager of Maytag Northwest, succeeding **J. A. Anderson,** who has been appointed branch manager with headquarters in Chicago.

**R. D. Stetson,** operations manager of the Shell Oil Company, has been named president of San Francisco Sales Managers' Ass'n.

**Fred H. Currie** and **S. G. Higginbotham** named sales representatives in California and Arizona for Michigan Steel Casting Co., with offices in Los Angeles.

CORRECTION — The Carborundum Company's San Francisco offices have moved to new quarters at 25 California St., from 340 Sixth St., and not the reverse as carried in our June issue. **Frank J. Blake** is district manager.

# NEW METHODS, MATERIALS, EQUIPMENT

## That Will Help to Cut Your Production Costs

778

### "Twin" Handles Oil Drums Without Pallet

Lifting and carrying of oil drums without use of pallets or handling of the drums is accomplished by a new multiple carrier, the "Twin," announced by Trayner-Reinhart, Oakland 7, Calif. One or two drums may be taken up by the Twin, which holds them securely by gripping shoes faced with non-slipping rubber. Drums are released by positive hydraulic pressure to retract the shoes.

The Tray-Hart Four-Drum Carrier, previously introduced, is for attachment to larger fork trucks. Either model can be interchanged with conventional fork attachment.

779

### Bench Filer Has Variable Speeds

Stepless speeds from 170 to 470 strokes per minute are a feature of a new precision die filter introduced by DoAll Company, Des Plaines, Ill., made possible by use of DoAll's Speedmaster 3-A. Machine is recommended for use where high degree of accuracy is desired, or where work is too small and intricate to be finished on a band filing machine. Files are available in 12 shapes, three grades of coarseness and two shank sizes. Honing stones and diamond hones are also available.

780

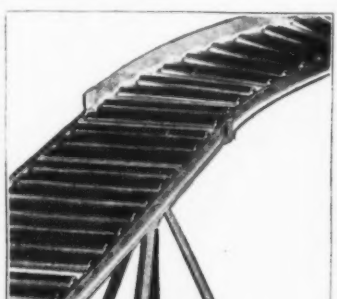
### Caul Board Wax For Plywood Plants

Urea resin glues, widely used in the plywood industry since their development during the war, are widely accepted because of high adbesive qualities, but at the same time drippings of this type of glue are difficult to scrape off the caul boards. S. C. Johnson & Son, Inc., Racine, Wisc., has developed a No. 1 Caul Board Wax, an easy-to-spread paste with hard carnauba base, use of which is said to effect savings of up to 90 per cent in scraping time. The product is recommended by Johnson for use on birch, maple, poplar and other open-grain wooden caul boards as well as on aluminum boards.

781

### Reversible Conveyor Serves Dual Purpose

Handling of loads wider than the conveyor is an important feature of a new tripod-supported, dual purpose conveyor introduced by Metzgar Company, Grand Rapids, Mich. It is built with roller axles off center in the frame, causing the rollers



to extend well above the edges of the frame for carrying extra wide materials. Flipped over, the conveyor rollers form a continuous guard rail that prevents small items from falling off.

782

### Precision Grinder Sharpens Drills

A new product in the tool industry by a new Western manufacturer is a precision drill grinder introduced by the E-Z Mfg. Co., Los Angeles. The grinder comes complete with adjustable spacer and protractor fixture for handling various length drills, and is claimed to sharpen the average drill in 30 seconds.

783

### Midget Loader Handles Man-Sized Jobs

Small enough to work inside a box car, yet big enough to move 1,200 pounds of loose material at 15 miles an hour, the new Arrow Scooter-Loader operated by one man can do the work of a crew of shovelers and wheelers in foundries, fertilizer and chemical plants, charging concrete mixers and a wide variety of jobs. Made by Arrow Contractors Equipment Co., Chicago, this new type loader is powered by a 9 hp. air-cooled motor, has four speeds forward and one reverse, and will turn in its own 6½-ft. length.

784

### Adhesive Markers Aid Metal Identification

Rapid identification of various alloys by the manufacturer is made simple by use of the E-Z Code Wire Markers, developed by A.P.Tis, Kollsman Instrument Div. of Square D Company, Los Angeles. Made of tough, self-adhesive strips, the markers are printed with fade-proof inks according to the users own code, and may be removed or replaced. The markers are used extensively in electrical and other fields. Western Lithograph Co., Los Angeles, is manufacturer.

785

### New Electric Truck Series Announced

The Wright-Hibbard Electric Truck Co., Phelps, N. Y., has brought out a new line of small fork lift trucks which are said to embody several novel features. The new series, in 2,000, 3,000 and 4,000-lb. capacities, is of compact design, and has progressive speed control for load safety and extreme maneuverability.

786

### Magnetic Separator For Conveyor Systems

A magnetic separator for removal of tramp iron from air and gravity conveyed materials has been announced by the Columbia Engineering Service Co., San Francisco 5, Calif. Known as the "Cesco Magnetic Duct," the unit is fabricated from heavy gauge sheet metal containing two Cesco heavy - duty, angle - type magnetic plates. The latter are non-electric permanent magnets, and will not drop collected metal in the event of a power failure. The unit may be used for removing foreign metal particles from such gravity conveyed products as cotton, cotton seed, chemicals, fibres, chopped alfalfa and ensilage. Comes in sizes from 4-inch to 36-inch diameter inlets, or is available on order with special shaped inlets and outlets.

787

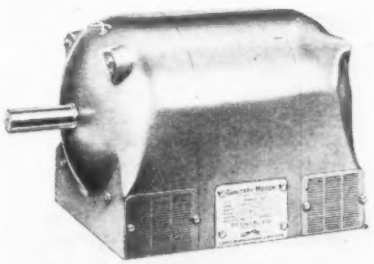
### Cube Tap Eliminates Internal Arcing

Incorporating a special, patented assembly feature, a new all-rubber Tapmaster Cube Tap has been introduced by Allied Electric Products, Irvington, N. J. Spring action blades and cross-arm contacts are riveted together so that no arcing is possible between the metal contacts. Tap is one-piece, unbreakable and tamperproof. In assembling, rubber is expanded, riveted contacts inserted, and rubber allowed to contract.

788

### Sanitary Motor

Of interest to food processors, dairy and beverage plants is a new sanitary motor developed by Louis Allis Co., Milwaukee, Wis. Free of cracks, recesses or depressions where food or liquids can collect, motor has base enclosed in motor housing; supplied in totally enclosed, non-ventilated type or, for larger ratings, with removable stainless steel grilles for cooling air inlets and outlets. Bulletin 711 gives complete data.



789

### New Breaker Point Tachometer Clips On

For testing gasoline engine speeds, Metron Instrument Co., Denver, Colo., has issued a new tachometer, Type 48U. Contact with the engine is made by clipping wires to the car battery and distributor breaker points, and by incorporating three ranges in one instrument, accurate readings within one per cent from 100 to 5,000 rpm.s are obtained, according to the manufacturer.

790

### Heating Element Has Extruded Fins

Even dissemination of heat is the feature of a new lost cost "Fin Heatube" electric heating element for heating air in motion, introduced by Industrial Electric Mfg. Co., Allegan, Mich. The new tubing has extruded metal fins which are actual extrusions of the tube itself. Furnished in straight lengths to customer's specifications, and may be bent to desired shape without danger of loosening fins. No hot filaments are ever exposed, making tubing suitable for portable circulating heaters, drying ovens and similar installations. Copper units may be used for immersion heaters.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# Reading Guide For Western Management

***A service for all management levels . . . current literature surveyed and appraised by the faculty of the School of Management, Golden Gate College***

## Principles of Personnel Testing

By Charles H. Lawshe, Jr. McGraw-Hill Book Co., Inc., New York City, 1948. $3.50

This is the type of practical discussion much needed to give personnel testing the impetus it deserves among those responsible for employment policies. The author has succeeded admirably in presenting a brief, authoritative, readable statement which should be useful to management as well as to personnel technicians. It is the kind of book beginners in the use of tests will open frequently for helpful hints. For those experienced in tests, it provides handy summaries of recent developments.

For a period of years, Professor Lawshe, through Purdue's Industrial Personnel Testing Institute, has seen his ideas tried out in practice by numerous industrial and governmental personnel workers trained in an annual two weeks intensive course. His book covers many of the topics included in the Institute

What tests to use for different jobs.

How to choose, try out, and finally validate or evaluate tests for specific purposes.

How to "tailor make" a test or a battery of tests to fit the job.

Using tests to reduce accidents.

Gaining union cooperation.

Inaugurating and operating a test program.

There are useful sections dealing with the analysis and presentation of data, together with numerous graphic charts illustrating testing principles and the interpretation of results. Summaries at the end of each chapter, numerous references to recent articles on testing, and a good index contribute to the book's value as a text for training purposes.

No other recent book has come to my notice containing an equally well selected list of commercially available tests. The appendix also contains valuable sections on "Sampling Theory and Practice," and a list of "Fundamentals of Test Administration."

Reviewed by:
ROY W. KELLY
*Personnel Administration and Industrial Relations*

## The Union Challenge To Management Control

By Neil W. Chamberlain. Harper & Bros., New York, 1948. $4.50

One development in particular in industrial relationships of recent years has far-reaching potentialities; namely, the impact of collective bargaining on management's responsibilities and its control of productive processes. Some phases of the problem have been dealt with in terms of management "rights" or "prerogatives." Many attempts have been made by employers to build a wall against further union encroachment, through inclusion in the labor contract of definitions of "management rights" and denial of union interference with them.

The Chamberlain book presents for the first time the results of a comprehensive study of the issues involved in the unions' concern with management control. The theory and practice of corporation management in several mass production industries covered by the research are subjected to intimate analysis. The accomplishments of management in terms of announced policies and objectives are appraised. Likewise, human needs and the forces developed through unions for the satisfaction of those needs are explored and spread upon the table as a basis for reader appreciation of the main theme of the book; namely, the penetration of management by unions and the functional integration of the interests of capital, management, workers and unions.

The viewpoints of responsible officials of both unions and management are quoted copiously throughout the book. This valuable feature makes possible the use of such judgments by other students of labor relations. The author has woven into his master scheme of analysis the experience and opinions of individuals and groups so skillfully that often it is difficult to separate them from his own observations and conclusions.

A clue to the author's viewpoint as to when a union functions in a management capacity is found in the following: "We have previously said that the union's participation (in the processes of industrial jurisprudence) is itself the exercise of a managerial function." Again, "The union participates in this directive function whenever it joins in a decision which is not subject to reversal by higher authority." Thus, the re-interpretation of long established practice in contract administration may throw an activity into a management category and take it out of the customary classification of bargaining. This illustration from the text is indicative of the manner in which the author has freed himself from traditional viewpoints, a circumstance which is both rare and valuable.

Toward the end of the text the going becomes rough for the average reader. The author perhaps treats too briefly the contract between mere extension of the subject matter falling within the scope of the labor contract and the suggestion that the nature of the subject matter of the contract is actually changing. If there is to be a functional integration of interests of labor and management within the corporate organization and in the processes of production, the ultimate achievement would be the elimination of all conflict—a sort of social-economic utopia. On the other hand, if the constructive forces of competition between individuals and groups are to be preserved, management and unions must maintain their separate identity. To eliminate one or the other through integration and merger will lead to monopoly and dictatorship. This is a fundamental consideration which the reader of this important book should keep in mind. In any event, the book should be read by thinking persons who are active in labor relationships.

Reviewed by:
GLENN BOWERS
*Personnel Administration and Labor Relations*

## Briefer Guides From The Management Library

### Sales Organization & Compensation Of Sales Executives

National Industrial Conference Board, Studies in Business Policy, No. 28, 1948 (pamphlet).

This Conference Board study presents compensation data for nearly 800 sales executives in the more than 300 companies which cooperated in the study. The general duties of these executives are reviewed, as are certain procedures and types of sales organizations.

### Constructive Labor Relations

By Lester & Robie. Industrial Relations Section, Princeton University, 1948 (pamphlet).

A report covering the experiences of four companies in successful labor relations. It is a study of the forces, policies, procedures, and conditions that promote good union-management relations and the problems that arise under collective bargaining.

### Personnel Testing

By L. B. Ward. An article in *"Harvard Business Review,"* March, 1948.

What can psychological testing contribute to personnel administration? The author warns against climbing aboard the psychological bandwagon without first examining the pros and cons of testing. This article will interest companies who are contemplating the use of testing programs and companies who are already using them but perhaps wondering why the results are not as good as they expected.

### Replacement Costs & Depreciation Policy

National Industrial Conference Board, Studies in Business Policy, No. 27, 1948 (pamphlet).

Costs of replacing obsolete plant facilities have skyrocketed since 1939, and the need for efficient, up-to-date equipment is urgent. This study reviews the steps business managements are taking to assure adequate financing of modernization and replacement programs.

Reviewed by:
BERNA M. CARLSON
*Management Librarian*

# HELPFUL LITERATURE

## For the plant operator who wants to keep informed

2387

**Punch Press Catalog** — *Diamond Machine Tool Company, Los Angeles 23, Calif.*, has issued a new 12-page catalog on Diamond open-back inclinable punch presses. Contains data on calculating tonnage for punch press capacity to aid in selecting proper press for a given job.

2388

**Improved RY-AX Steel**—New bulletin gives mechanical properties, hardness readings, machinability rating and lists typical shafting, axle and other applications for this heat treated carbon-manganese hot rolled bar steel. *Joseph T. Ryerson & Son, Inc., Los Angeles 54,* or *Emeryville, Calif.*

2389

**Butch Learned the Hard Way**—A 16-page illustrated booklet on safety practices in the shop. Discusses basic essentials such as protective clothing, using the machine guards provided, good housekeeping in the shop, elimination of horseplay on the job. Bulletin No. 95, *U. S. Bureau of Labor Standards, Department of Labor, Washington 25, D.C.*, or in quantity at 10c each from *Superintendent of Documents, Government Printing Office.*

2390

**Over the Rough Spots**—How to patch holes and ruts or resurface any type floor simply and quickly — this is the subject of a Maintenance Manual issued by *Stonhard Company, Dept. WI., Philadelphia, Pa.*

2391

**The Master of Flame**—Dry chemical fire extinguisher catalog listing various types for industrial, home and automobile use, issued by *Ansul Chemical Co., Marinette, Wis.*

2392

**Daylight in Industrial Buildings** is the title of a 36-page booklet outlining advantages of Insulux Glass Block for owners and operators of industrial buildings. Booklet is arranged in 10 sections covering light-transmitting qualities of Insulux, insulation value, heat gain, permanency, low maintenance, and sound reduction. *American Structural Products Co., Toledo, Ohio.*

2393

**Hercules Chemicals**—A new products book listing, with brief descriptions, approximately 100 chemicals produced by the Hercules Powder Company. Chemicals are grouped according to family, including cellulose, synthetic resins, rosin terpene solvents and chemicals, chlorinated products, dairy products and explosives and sporting powders. *Hercules Powder Co., Wilmington, Del.*

2394

**Towmotor Job Study No. 71**—Analysis of interesting handling operation contained in this illustrated report on solution of the problem of working with packages of wide variety of shapes and sizes in the drug industry. Booklet covers Towmotor Mass Handling techniques as applied to plant of Eli Lilly Co. For copies address *Towmotor Corp., Cleveland, Ohio.*

2395

**Welder's Guide** — A pocket booklet giving characteristics of various welding arcs, four essentials of proper welding procedures, type of joints, typical positions, chart of standard steel shapes, causes of common welding troubles and what to do about them, welding symbols, plus a table of "How to Find" formulas. *Hobart Bros. Co., Troy, Ohio.*

2396

**Allegheny Metal** in Chemical Processing is fifth of a series of booklets on role of stainless steel in industry. Charts show physical, fabrication and other data on various recommended grades, with facts and figures on use of stainless steels in acid manufacture, plastics, pharmaceutical, dye and soap industries. It is a 36-page book in color, designed both for technical men and laymen. *Allegheny Ludlum Steel Corp., Pittsburgh, Pa.*

2397

**Induction Heaters**—This brochure illustrates the versatility of this electronic device in a wide variety of metal processing jobs. Brazing and soldering, hardening, annealing, heating are some of topics covered. *Allis-Chalmers Mfg. Co., Milwaukee, Wis.*

2398

**Fresh Air**—*The National Ass'n of Fan Manufacturers, Detroit, Mich.*, has issued an illustrated booklet on the application of exhaust and blower systems for homes, stores and factories.

2399

**Pocket Electrode Guide** — This is a 4x8, thumb-indexed guide, profusely illustrated, with sections on mild steel, high tensile steels, low hydrogen weld metal, stainless steels, surfacing, non-ferrous and cast iron. The information on each electrode mentioned in the new guide includes description, recommended application and welding procedure. *Air Reduction Sales Co., New York, N. Y.*

2400

**Rust Preventive Report**—Efficient protection of metal parts while in production, in storage or awaiting shipment is the subject of a new publication by *Oakite Products, Inc., Los Angeles, Calif.* It discusses the Oakite Special Protective Oil, a semi-permanent product of low viscosity which displaces water and imparts a thin film to ferrous surfaces. Metal treated with his material and subjected to rigid humidity and acid-fume tests, showed no evidence of corrosion, it is reported.

2401

**Multi Drillers and Tappers**—A new 20-page illustrated bulletin with specifications on the new NATCO H-5 and H-6 multi-spindle drillers and tappers is now available. This book in two colors is completely indexed and contains all essential facts about both heavy-duty and standard T-5 and H-6 machines which now make possible high-speed, sensitive, multi-hole production in small parts in steel, cast iron, plastic, wood and aluminum. *The National Automatic Tool Company, Richmond, Indiana.*

2402

**Drill Press Turret**—A 12-page booklet has been released on the Lign-o-matic Turret, the first automatically aligning turret for drilling machines. The information features complete explanation of patented design features, operating instructions, specifications and prices. It is fully illustrated. *Howe & Fant, Inc., South Norwalk, Connecticut.*

2403

**Sheaves and Belts**—How to select a standard drive is the subject mater of a 16-page catalog on Transco V-Belt Drives. Included are detailed specifications regarding stock sizes of combination groove sheaves combined with stock V-belts for use up to 20 hp. at standard motor speeds, and ratios to 7:1. *Transmission Machinery Corporation, Dallas, Texas.*


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*Mfg'd by* **THOMAS TRUCK & CASTER CO.**

**3298 Mississippi River** — **Keokuk, Iowa**

### Oregon Plants Are Vital to War Effort

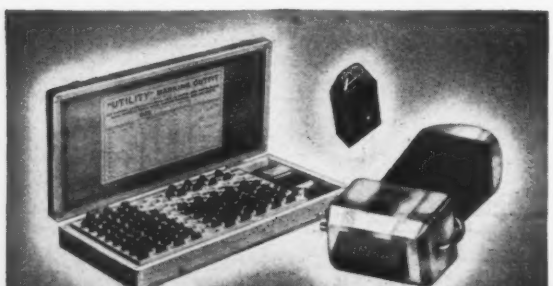
Six Oregon plants have been designated as vital to an over-all national defense program by the Munitions Board. Effect of this is to keep the plants on a stand-by footing so that they might be quickly reconverted to war production.

Plants so designated include three shipyards, those of Commercial Iron Works, Oregon Shipbuilding, and Willamette Iron & Steel Co., Portland, as well as a locomotive assembly plant and a ship outfitting yard. Sixth plant is that of Willamette Valley Chemical Co., Springfield, Ore.

### Flying Fishermen

As the result of a $600,000 contract with more than eight fish packing and canning companies operating in the northern territory, Transocean Air Lines at the Oakland Municipal Airport began on May 11 the mass transportation by air of more than 2,000 deep-sea fishermen to the Bristol Bay area of Alaska for the six weeks' fishing season. The contract is a joint one with Pacific Overseas Airlines of Ontario, Calif., and at the conclusion of the contract the fishermen will be returned to their homes in Seattle and the San Francisco Bay area in mid-summer. The flights took approximately 11 hours flying time. Northern terminus of the flights was Naknek Airport.

**• Southern California Material Handling Association elected A. Mazzola, Angelus Engineering Co., as president. Seen here are, l. to r. (standing): V. J. Pence, Mailler Searles, Inc.; Glenn A. Harshbarger, Frank E. Witte Co. and T. A. Fitch, Irving G. King & Co., board members. (Seated): S. E. Morris, Stanley E. Morris Co., vice-president; President Mazzola, and William F. Mills, Pacific Factory, secretary-treasurer.**

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Holder Holds Nine Sizes of Type From 1/12" to 1/4"

Designed for light stamping work, the "Utility" outfit is ideal for marking etched plates, tags, keys, stock checks; brand names or stock numbers on steel bars; special coding, serial numbering, identification, inspection and other marking where two or more characters are required.

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### Helicopters For Cross-Town Air Mail

Cross-town air mail is now in use by a score of Los Angeles area firms. Personnel of offices located near the Los Angeles Airport, hub of the helicopter mail system, use the hedge-hopping mail service instead of messengers for quick delivery of letters and packages to nearby points.

According to J. I. Greenwald, manager of TWA's Los Angeles passenger terminal, members of his staff use cross-town air mail constantly, finding that special delivery letters are delivered downtown in from two to four hours, usually, and that they sometimes get there faster than they could be taken by automobile.

### Tube Mill Expansion

Electroweld Steel Corporation are planning to set up a tube fabricating unit at their new mill at Azusa, California, to serve the requirements of the automotive and aircraft industries. At present they are making electric resistance welded steel tubing in mechanical or pressure grades, in sizes ranging from 5/8-in. O.B. to 2½-in. O.D. John S. Crowl, president, founded the company in Oil City, Pa., where the original plant was sold early in the war to Jones & Laughlin Steel Corporation, who are now operating it as the tube mill division of J&L. Then a new plant was built in 1946 on a 35-acre site in Azusa. C. A. Crowl took charge of this plant as vice-president and general manager after returning from navy duty.

### Northwest Rail Service Getting Back to Normal

The tremendous backlog of freight collected in the Northwest because of the disastrous flood is almost cleared up, and rail service is getting back to normal. Loss to the railroads alone will run into several million dollars, although no exact estimate has yet been made. The Great Northern placed its own damage at more than a million dollars.

During the worst of the high water period, rail freight between Portland and Seattle was routed via Pasco, over the Spokane, Portland & Seattle tracks. This made freight movement take three days as compared to about six hours over the usual route.

### Ten Ideas For Making Houses Cost Less

Here is what the lumber industry could do to help standardization of lumber so as to cut down building costs, according to Frank Roehr, of Portland, president of the Oregon chapter, American Institute of Architects:

1. Cut joists to standards to come out in even inches.

2. Produce standard stock sizes instead of using the antiquated odd lengths and widths used by the manufacturers.

3. Set up standards for universal lumber grading instead of the haphazard methods now used. Clearly and understandably mark lumber grades.

4. Mark kiln dried lumber as such and impress mark plywoods as to type: exterior, interior and marine.

5. Manufacture kiln dried joists and end seal.

6. Provide properly treated lumber to protect against dry rot, termites, fire, etc.

7. Modernize marketing methods. Improve design and stock sizes in siding, mouldings, doors, casings, bases, trim, ceiling moulds. Everybody still follows the old moulding catalog that was never any good in the first place.

8. Plywood mills should shape the edges of plywood so builders do not have to rough edge so much.

9. Standard doors, frames and other lumber should be packaged and sent to the job in keeping with modern merchandising methods. This would gain for the industry respect and trust of architects, contractors and laymen.

10. Study needs to be given to the siding problem. Cedar siding still blisters. The growing shortage of cedar shingles indicates needed studies to provide other woods that will give equal results.

11. In fireproofiing lumber, the surface should also be fireproofed.

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# MECHANICAL KINKS

By W. F. SCHAPHORST, M.E.
Former Engineering Instructor
New Mexico State College

### Cooling Tower Efficiency

AIR conditioning and refrigeration are being so commonly employed these days that in many cities the water problem is becoming acute. Water is needed for cooling in the refrigeration processes, and owing to the fact that water always has been abundant and is comparatively cheap it has been allowed to go to waste into the sewer.

As a result cities have found it necessary to make restrictions regarding water consumption. The logical answer, therefore, is: Use water cooling and water saving devices such as the cooling tower, spray pond, etc.

In addition to air conditioning there is the Diesel engine and other internal combustion engines which must be cooled. Much water has been wasted into the sewer in this way and it is not at all uncommon, now, to find cooling towers being used in conjunction with Diesels. For these purposes the cooling devices usually pay for themselves in a short time and are well worth while.

Herewith is a chart, prepared by the writer, for determining cooling tower efficiency. If you have a cooling tower, or are contemplating the installation of a device of that nature, efficiency is important. The chart is used as follows:

Subtract the temperature of the water after it is cooled from the temperature of the same water before cooling, and locate the difference in column A.

Then subtract the wet bulb temperature of the entering air from the temperature of the water before cooling and locate the difference in column B.

Now run a straight line through the two located points in columns A and B and the intersection with column C gives the efficiency of the cooling tower or cooling device.

For example, the dotted line drawn across the chart shows that if the temperature of the water before cooling is 88 and the cooled water temperature is 82 the difference, 6, is located in column A. If the wet bulb temperature of the entering air is 80, subtract from 88 and locate the 8 in column B. The straight line then gives the efficiency of the cooling device as 75 per cent, in column C.

During summer months one should expect an efficiency of 65 to 70 per cent. If an efficiency of 90 per cent is reached by your device that may be regarded as good. An efficiency of 35 per cent would be called poor. Much, of course, depends upon weather conditions.

### Be Careful of Outdoor Drives

We sometimes erroneously believe that simply because a machine is completely enclosed it can be safely installed outdoors. Totally enclosed motorized variable speed drives, for instance, are a good example. Instances have been brought to this writer's attention of drives of this type being harmed by installing them outside, subject to year-around weather.

These drives are totally enclosed, yes, and the users doubtless felt that they would be immune to any kind of weather. But not so. When the sun shines on the casing the inside sometimes becomes so hot that the belts are ruined. Then when it rains and water enters the housing, which is not watertight, the discs may be caused to stick and corrosion is likely to result. And in extremely cold weather the discs and belts may cease to operate satisfactorily due to stiffness and congealed lubricant.

So if you find that you must install devices of this type in connection with outdoor machinery, it is well to be sure that they will be kept dry at all times and that they will become neither too hot nor too cold. In other words, a shelter is advisable. The same is true of other machinery that is generally installed indoors. Don't install it outdoors without first consulting the manufacturer.

### Unlawful to Repair Patented Machinery

According to law, you as an owner of machinery have no legal right to make repairs on the portions of such machinery that are patented. Perhaps you *have* paid in full for the machinery. Perhaps it *is* legally yours. But that makes no difference in the eyes of the law when it comes to repairing or replacing the *patented* parts. You may break or completely destroy the patented parts if you feel like doing that. Ownership permits destruction but it does *not* permit *building up* of machine parts that are protected by law.

Patents often apply only to a few specific parts. You may do whatever you wish to the unpatented parts, of course. But the patented portions must not be repaired by you or by anybody else without the permission of the patentee. Anybody furnishing parts for patented portions or repairing those parts who is not licensed by the patentee to do so is subject to damages for infringement.

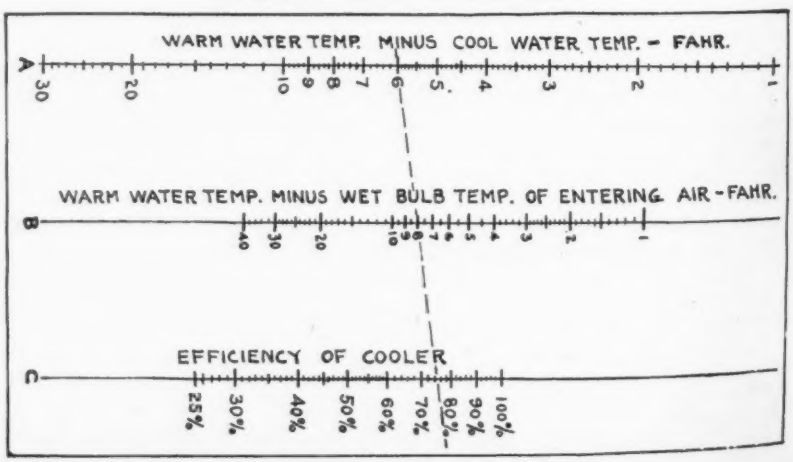
### Baffling Vertical Boilers

Most engineers know that there has been a vast improvement in the baffling of horizontal boilers during recent years. But it is not commonly known as yet that vertical boilers can also be improved by the modern method of baffling. Baffling is now as much of a science as is the building of boiler walls, furnaces, or the boilers themselves.

Instead of following the tubes in the old way baffles are now made to cut through the various banks at any angle that may be most advantageous to highest efficiency. By modern method of reinforcing and use of plastic fire-resisting materials, baffles are being built out into the open spaces in positions and at angles that would have been considered impossible a few years ago.

For example, an actual instance has just

**COOLING TOWER NOMOGRAPH**



been brought to my attention where, in a vertical boiler, the changing of the baffling from its old fashioned or standard position to a scientific position has been the direct cause of saving 7 per cent of the fuel. The change was a very simple one. Not only was 7 per cent of the fuel saved but the percentage of $CO_2$ was increased to an average of about 12 per cent. This is a thing that every engineer should investigate to his own possible advantage. Every dollar saved for the plant represents a possibility of an increase in salary or bonus.

### Good Oil Is Economy

If the efficiency of your lubricating oil is less than 100 per cent, don't use it.

That may sound like a strange doctrine, but it is a fact nevertheless that it doesn't pay to us a lubricating oil whose efficiency is not more than 100 per cent, and here is proof:

As every reader doubtless knows, the formula to lubricating oil, "input" is the amount of money "put into" the oil. In other words, it is the first cost of the lubricating oil.

The amount of money earned by the oil is the "output."

If, therefore, you invest $100 in a given quantity of lubricating oil the input is obviously $100.

Now, if that oil earns only $100, its output is only $100 and its efficieny is only $100 divided by $100, or 100 per cent.

Any lubricating oil must MORE than pay for itself for the same reason that any employee must more than earn his salary. An employee who merely "breaks even" for his employer is unprofitable and there is no economic reason why he should be kept.

In the same way if a lubricating oil merely "breaks even" there is no good reason why that kind of lubricating oil should be used. Use an oil that will *more than pay for itself* even though its first cost may be greater.

I have in mind, for example, an actual instance in the midwest. A prominent concern was spending $13,380 per year for general bearing and cylinder lubrication. The lubricants used were considered "good" and it was believed that they were paying their way — that they were getting all of the $13,380 per year back out of the oil.

Always on the alert to do things in a better way, though, as all good concerns should be, this company was progressive and willing to save money in order to make more money. So they decided to give a thorough trial to a lubricant that cost even more per gallon than the lubricant they were then using. The higher priced lubricant was reputed to be better and they were willing to try it out.

They saved $3,468 the first year as a result. With production levels identical the cost of lubricating the machines dropped to $9,912 per year in spite of the fact that the lubricant now being used costs more per gallon than the former.

Based on the above formula the efficiency of the present lubricant is therefore at least ($13,380÷$9,912) 135 per cent. It is surely obvious that if the first oil was "satisfactory" and "paid its way" the present oil must be more than 100 per cent efficient.

### Oregon Phone Rates May Be Increased

Unless the Oregon Utilities Commission orders a suspension pending hearings on the proposal, telephone rates throughout the state are scheduled to be increased 26.5 per cent on July 10. Pacific Telephone & Telegraph Company's request has been under study by the commission, which has indicated that the suspension would be ordered. The proposed increase would yield an additional $3,311,000 annually after taxes. A raise in rates granted about six months ago totaled more than $1,500,000.

### New Use For Sawdust

Table tops of sawdust blended with phenol formaldehyde industrial resins and pressed into a board are being manufactured by Wood Products, Inc., in the box factory of Setzer Forest Products, Inc., at Sacramento, California. The idea was developed by Hughes Research and Engineering Co. On overlay of melamine treated paper provides a smooth surface.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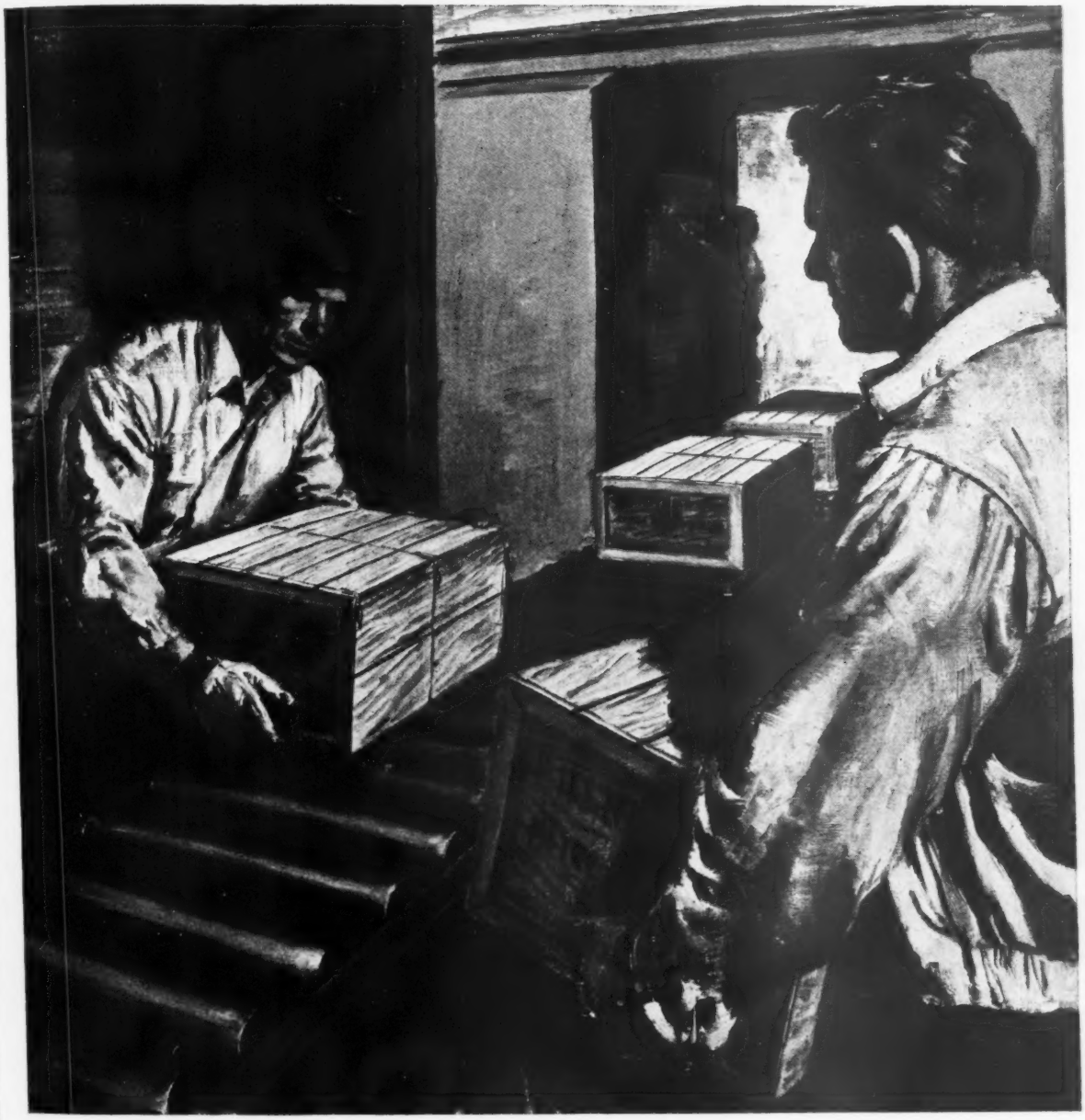

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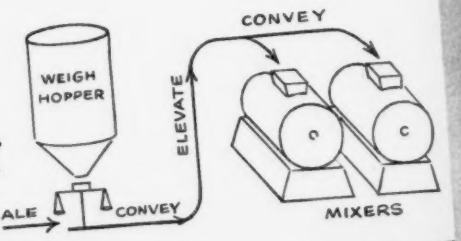


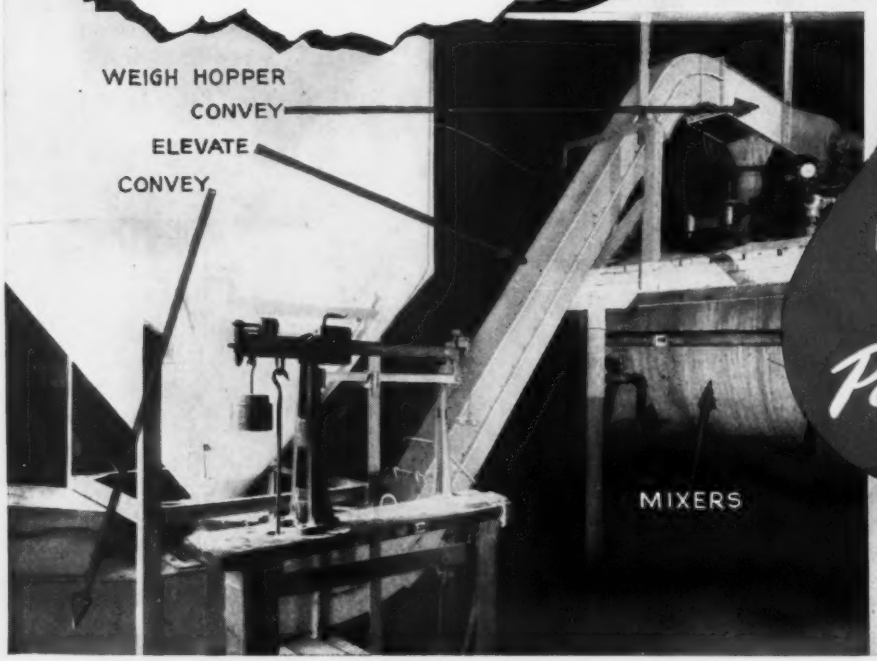


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